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Service Manual

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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	:	LCD, IPS
Screen size	:	
- 26PF4310/10	:	26” (66 cm), 15:9
- 26PF5320/10	:	26” (66 cm), 16:9
- 32PF5320/10	:	32” (82 cm), 16:9
- 32PF7320/10	:	32” (82 cm), 16:9
Resolution (HxV pixels)	:	
- 26PF4310/10	:	1280 x 768
- 26PF5320/10	:	1366 x 768
- 32PF5320/10	:	1366 x 768
- 32PF7320/10	:	1366 x 768
Contrast ratio	:	
- 26PF4310/10	:	500:1
- 26PF5320/10	:	600:1
- 32PF5320/10	:	600:1
- 32PF7320/10	:	600:1
Light output (cd/m^2)	:	
- 26PF4310/10	:	400
- 26PF5320/10	:	500
- 32PF5320/10	:	500
- 32PF7320/10	:	500
Response time (ms)	:	
- 26PF4310/10	:	16
- 26PF5320/10	:	16
- 32PF5320/10	:	18
- 32PF7320/10	:	18
Viewing angle (HxV degrees)	:	
- 26PF4310/10	:	176x176
- 26PF5320/10	:	178x178
- 32PF5320/10	:	176x176
- 32PF7320/10	:	176x176
Tuning system	:	PLL
TV Colour systems	:	PAL B/G, D/K, I
	:	SECAM B/G, D/K, L/L’
Video playback	:	
- 26PF4310/10	:	PAL B/G; SECAM L/L’
- 26PF5320/10,	:	
- 32PF5320/10,	:	
- 32PF7320/10:	:	NTSC M/N 3.58, 4.43
	:	PAL B/G
	:	SECAM L/L’
Supported computer formats	:	VGA (640x480)
	:	MAC (640x480)
	:	SVGA (800x600)
	:	XVGA (1024x768)
	:	WXGA (1280x768)
Supported video formats	:	640x480i - 1fH
	:	720x576i - 1fH
	:	640x480p - 2fH
	:	720x576p - 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})	:	
- 26PF4310/10	:	2 x 5
- 26PF5320/10	:	2 x 5
- 32PF5320/10	:	2 x 15
- 32PF7320/10	:	2 x 15

1.1.3 Miscellaneous

Power supply:		
- Mains voltage (V_{AC})	:	95 - 240
- Mains frequency (Hz)	:	50 / 60
Ambient conditions:		
- Temperature range (°C)	:	+5 to +40
- Maximum humidity	:	90% R.H.
Power consumption		
- Normal operation (W)	:	≈ 96
- Stand-by (W)	:	< 1
Dimensions (WxHxD cm)	:	
- 26PF4310/10	:	79.2 x 43.1 x 24.2
- 26PF5320/10	:	80.45 x 47.7 x 22.2
- 32PF5320/10	:	92.4 x 55.0 x 22.2
- 32PF7320/10	:	92.4 x 55.0 x 22.2
Weight (kg)	:	
- 26PF4310/10	:	15
- 26PF5320/10	:	16
- 32PF5320/10	:	18.2
- 32PF7320/10	:	18.2

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

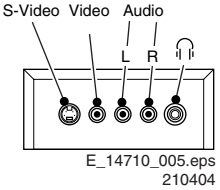

Figure 1-1 Side I/O connections

SVHS (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

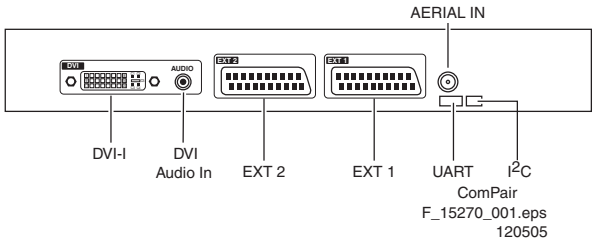

Figure 1-2 Rear I/O

Aerial - In

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

Mini Jack: PC-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

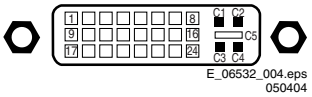

Figure 1-3 DVI-I connector

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

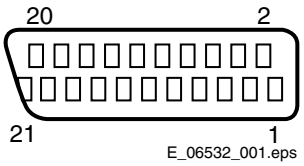

Figure 1-4 SCART connector

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

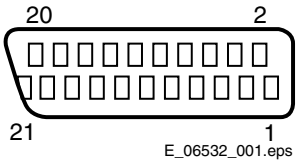

Figure 1-5 SCART connector

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

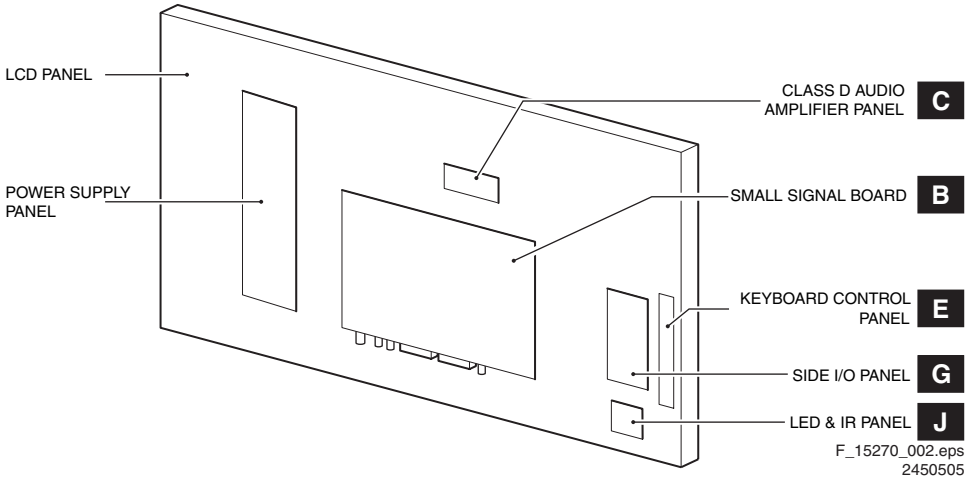

Figure 1-6 Chassis overview

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 (①) 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.
- Manufactured under license from Dolby Laboratories. “Dolby”, “Pro Logic” and the “double-D symbol”, are trademarks of Dolby Laboratories.

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 “Repair downloads”. 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 mix 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 "Repair downloads".
For additional questions please contact your local repair help desk.

2.3.5 Alternative BOM identification

In September 2003, Philips CE introduced a change in the way the serial number (or production number, see Figure 2-1) is composed. From this date on, the **third digit** in the serial number (example: AG**2**B0335000001) indicates the number of the alternative BOM (Bill of Materials used for producing the specific model of TV set). It is possible that the same TV model on the market is produced with e.g. two different types of displays, coming from two different O.E.M.s.
By looking at the third digit of the serial number, the service technician can see if there is more than one type of B.O.M. used in the production of the TV set he is working with. He can then consult the At Your Service Web site, where he can type in the Commercial Type Version Number of the TV set (e.g. 28PW9515/12), after which a screen will appear that gives information about the number of alternative B.O.M.s used.
If the third digit of the serial number contains the number 1 (example: AG**1**B033500001), then there is only one B.O.M. version of the TV set on the market. If the third digit is a 2 (example: AG**2**B0335000001), then there are two different B.O.M.s. ***Information about this is important for ordering the correct spare parts!***
For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26 = 35 different B.O.M.s can be indicated by the third digit of the serial number.

2.3.6 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 Position
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

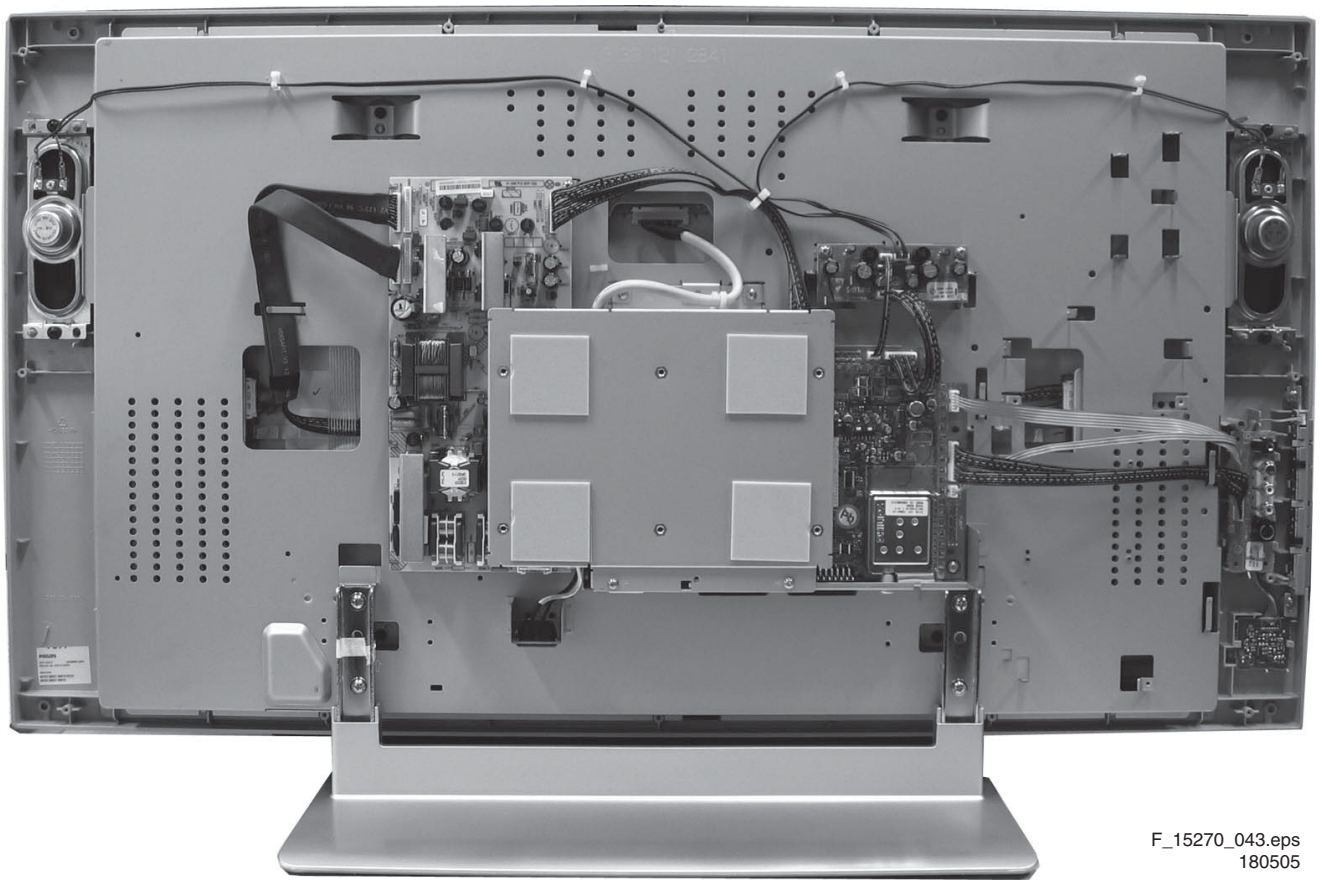

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Figure 4-1 Cable dressing

4.2 Service Position

First, put the TV set in its service position. Therefore, place it upside down on a table top (use a protection sheet or foam bars).

4.2.1 The Foam Bars

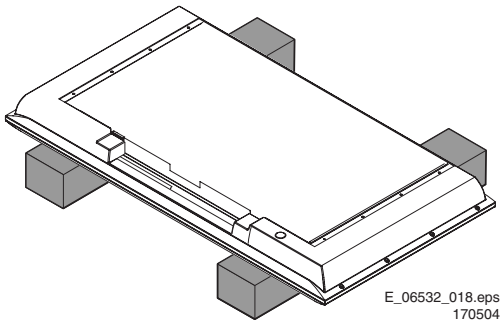

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Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580) can be used for all types and sizes of Flat TVs. By laying the plasma or LCD TV flat on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. By first placing a mirror flat on the table under the TV you can easily see if something is happening on the screen.

4.3 Assy/Panel Removal

4.3.1 Rear Cover

Warning: Disconnect the mains power cord before you remove the rear cover.

1. Remove the screws that secure the rear cover.
2. Lift the rear cover from the cabinet cautiously. Make sure that wires and other internal components are not damaged during cover removal.

4.3.2 Side I/O Panel

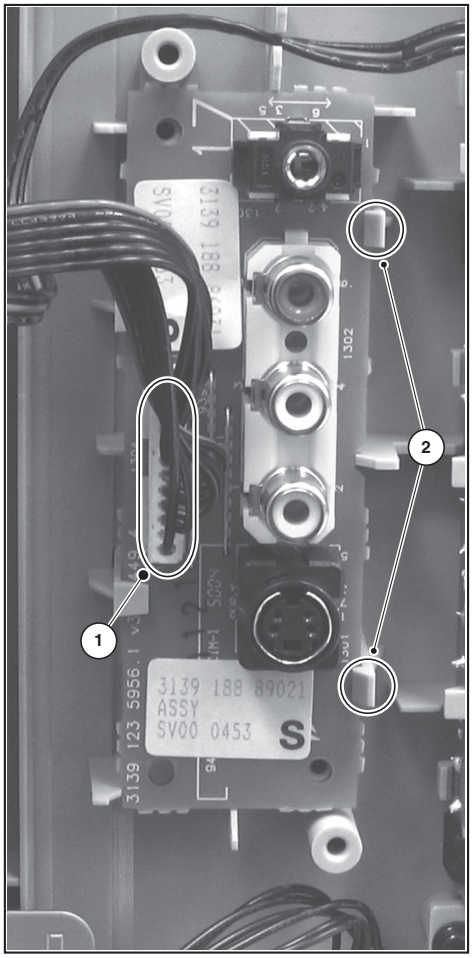

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Figure 4-3 Side I/O panel

1. Disconnect the cable (1) from the panel.
2. Release the two fixation clamps (2) and lift the panel out of the bracket.

4.3.3 LED Panel

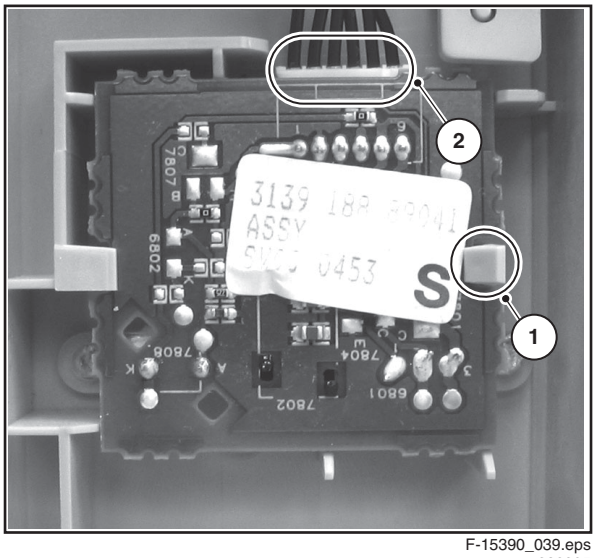

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Figure 4-4 LED panel

1. Release the fixation clamp (1) and take the panel out of the bracket.
2. Disconnect the cable (2) from the panel.

4.3.4 Keyboard Control Panel

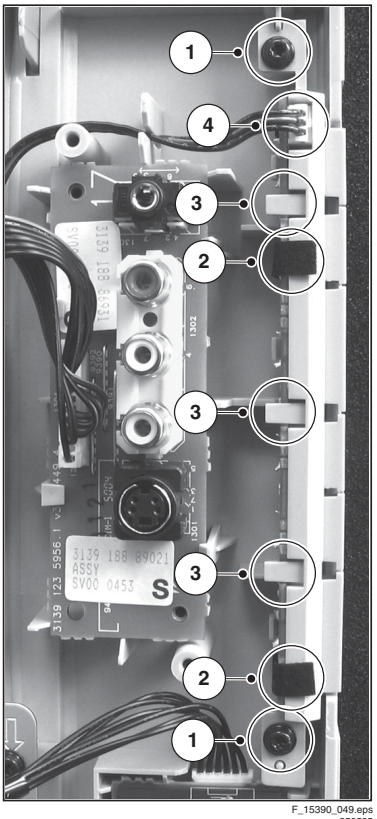

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Figure 4-5 Keyboard control panel

1. Remove the two fixation screws (1) from the bracket and take out the panel/bracket combination.
2. Remove the fixation tape (2) from the panel/bracket combination.
3. Release the three fixation clamps (3) and lift the panel out of the bracket.
4. Disconnect the cable (4) from the panel.

4.3.5 SSB Board Cover Shield (depending on model)

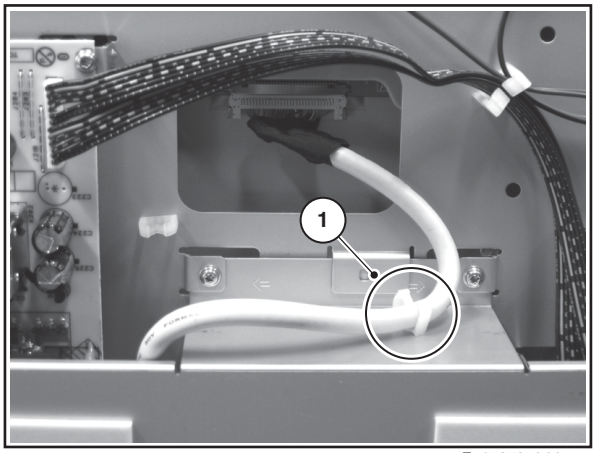

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Figure 4-6 Cable clip on cover shield

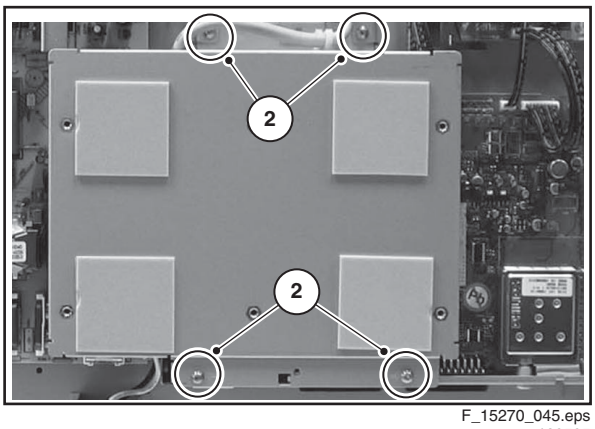

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Figure 4-7 SSB board cover shield

1. Release the cable from the plastic cable clip (1) on the shield (see Figure “Cable clip on cover shield” above).
2. Remove the four fixation screws (2, see Figure “SSB board cover shield”; the screws are also indicated by arrows on the shield) and remove the shield.
   Notice that on one side, the shield is not only held by two screws, but also by two brackets (see Figure “Cable clip on cover shield” above).

4.3.6 SSB Board

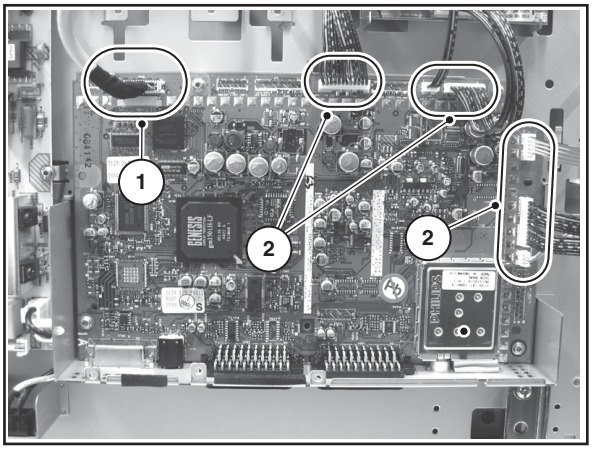

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Figure 4-8 SSB board connectors

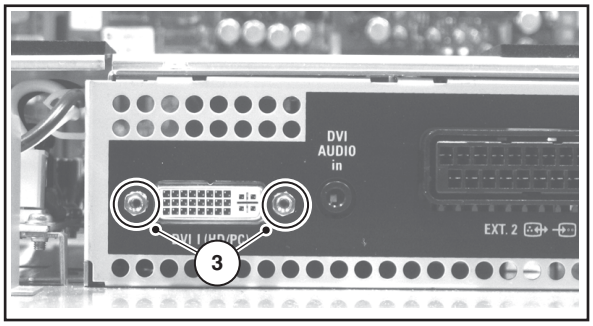

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Figure 4-9 DVI-I connector screws

1. Very **cautiously** disconnect the LVDS cable (1) from the panel (see Figure “SSB board connectors”). Notice that this cable is very fragile.
2. Disconnect the six remaining cables (2) from the panel.
3. Remove the fixation screws that secure the SSB board (depending on model) and also the two fixation screws (3) from the DVI-I connector on the SSB board (see Figure “DVI-I connector screws”).
4. Take the panel out of its brackets.

4.3.7 Power Supply Panel (various models used)

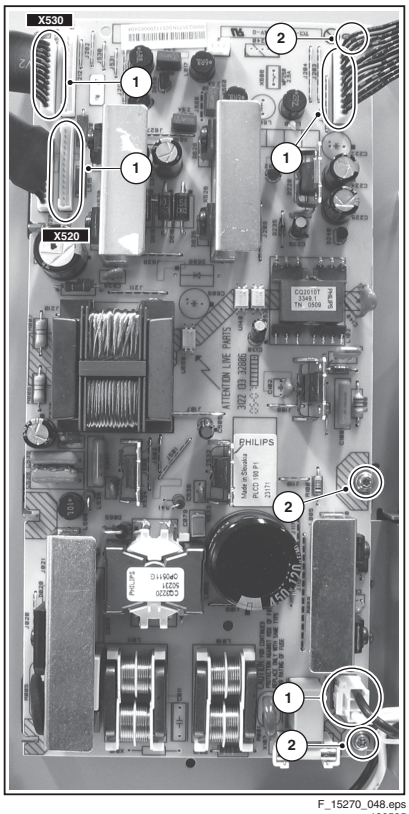

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Figure 4-10 Power supply panel

1. Disconnect all cables (1) from the panel.
   Notice that the two connectors for X520 and X530 on this panel are similar, and should not be mixed up later when they are reconnected (X520 is connected via its flatcable to connector CN01 on the LCD panel, near the R-speaker; X530 is connected via its flatcable to connector CN04 on the LCD panel, near the L-speaker).
2. Remove the three fixation screws (2) from the panel.
3. Take the panel out of its brackets.

4.3.8 Audio Amplifier Panel

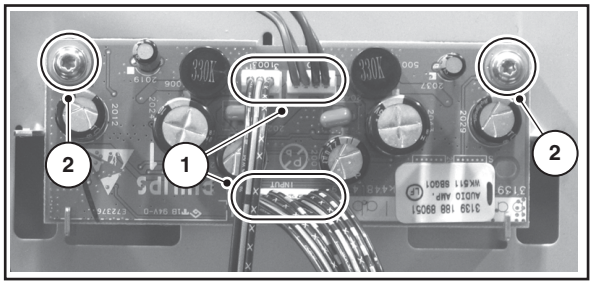

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Figure 4-11 Audio amplifier panel

1. Disconnect all cables (1) from the panel.
2. Remove the fixation screws (2) from the panel.
3. Remove the panel.

4.3.9 LCD Panel

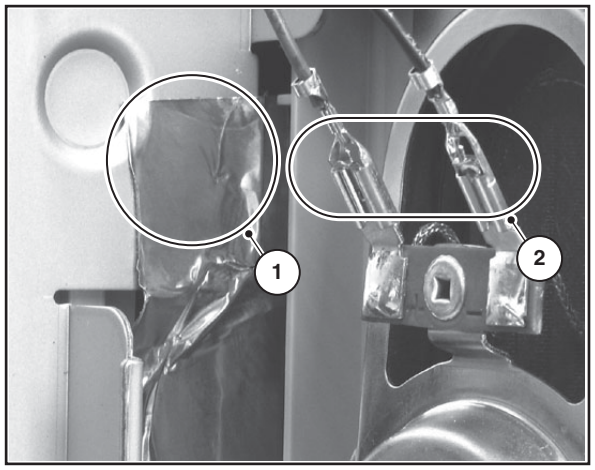

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Figure 4-12 Anti-static copper foil

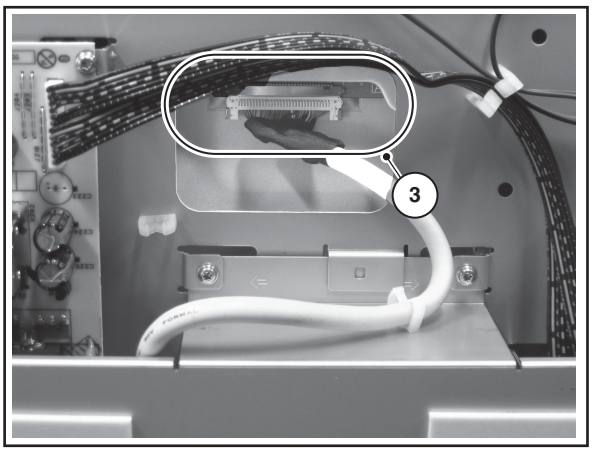

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Figure 4-13 LVDS connector

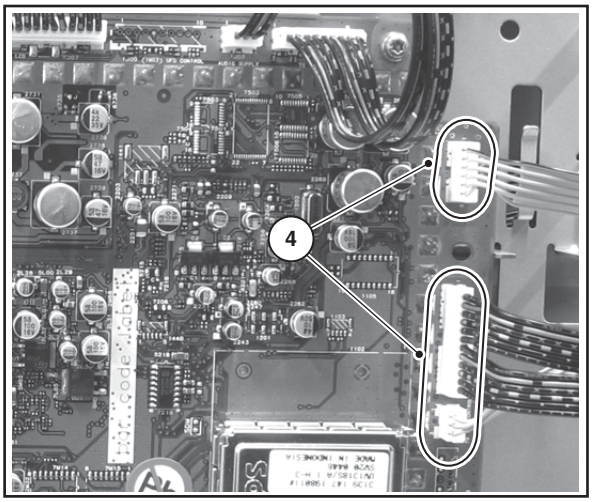

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Figure 4-14 SSB board connectors for side I/O, keyboard control, and LED

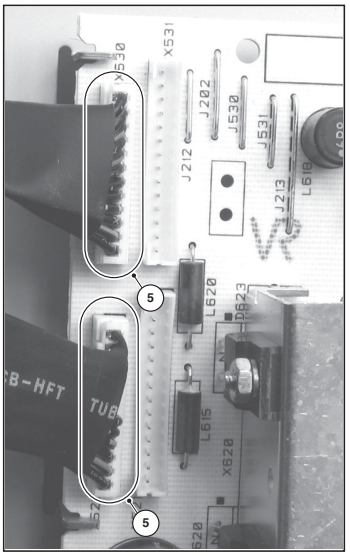

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Figure 4-15 Connectors X520 and X530 on power supply panel

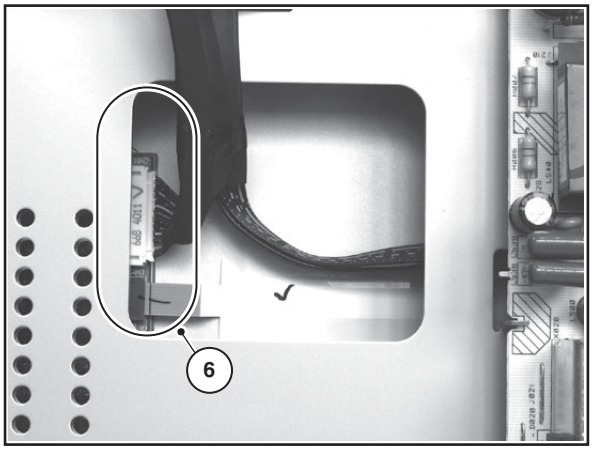

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Figure 4-16 Connector 66B on LCD panel

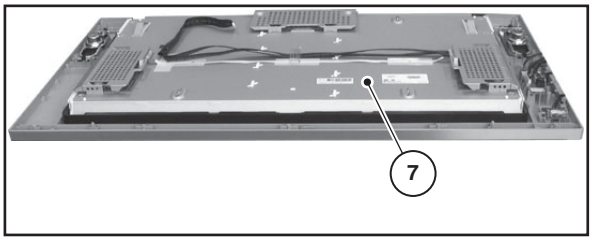

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Figure 4-17 LCD panel

To remove the LCD-panel, carry out the following steps:

1. Cautiously pull back the upper parts of the anti-static copper foils next to the “L” and “R” loudspeakers (see Figure “Anti-static copper foil”). Do this in such a way that the foils are no longer attached to the metal ground plate on which the SSB board is mounted.
2. Disconnect the cables (2) from the “L” and the “R” loudspeakers (see Figure “Anti-static copper foil”).
3. **Important:** Unplug the LVDS connector (3) on the LCD panel (see Figure “LVDS connector”).
   Be careful, as this is a very fragile connector!
4. Unplug the connectors (4) of the Side I/O panel, the Top Control panel, and the LED panel on the SSB board (see Figure “SSB board connectors for side I/O, keyboard control, and LED”).
5. Unplug the X520 and X530 connectors (5) on the Power Supply board (see Figure “ Connectors X520 and X530 on power supply panel”). Instead of X520, also connector 66B (6) on the other end of the flatcable can be unplugged (see Figure “Connector 66B on LCD panel”).
6. Lift the metal frame (together with all PWBs) from the LCD panel.
   Take care not to damage the fragile LVDS cable, the 66B connector and the anti-static copper foils near the “L” and “R” loudspeakers (take care of this too when later re-assembling the TV set and replacing the copper foil).
7. After removal of the metal frame, you can lift the LCD display (7) from its plastic frame (see Figure “LCD panel”).
8. If the plastic frame is damaged, replace it by a new frame, after removing the loudspeakers, the Side I/O panel, the Top Control panel, and the LED panel.

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". Also make sure that the anti-static copper foils are not damaged and that they make good electrical contact with the metal frame. Be careful with the fragile LVDS cable.

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.

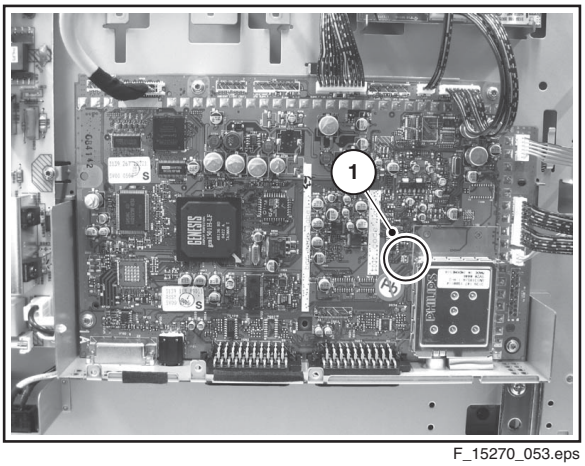

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Figure 5-1 Service jumpers

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.

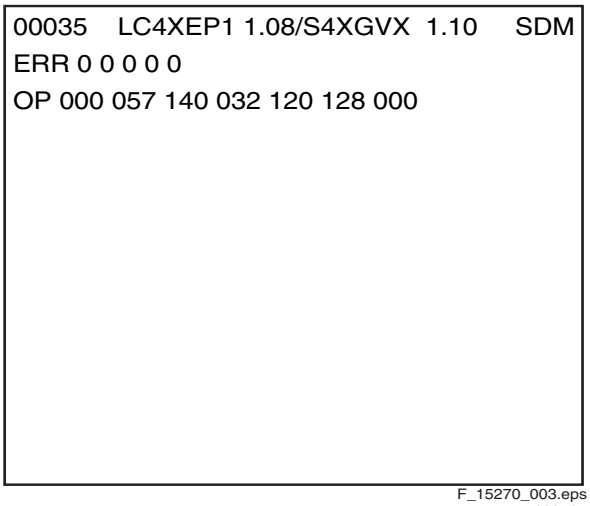

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Figure 5-2 SDM menu

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.

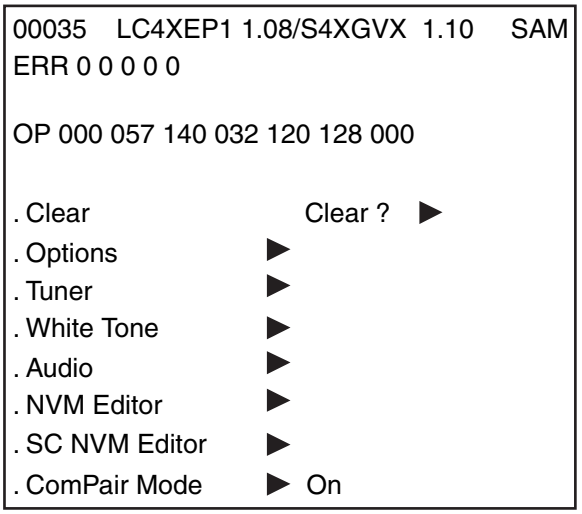

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Figure 5-3 SAM menu

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 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.

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:

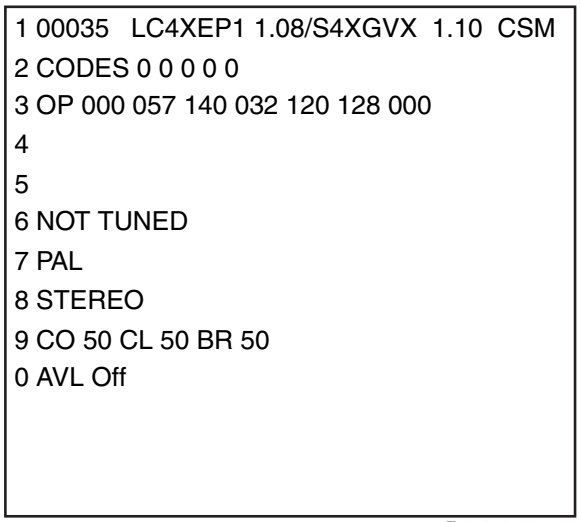

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Figure 5-4 CSM menu

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 fault finding 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 fault finding 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 fault finding 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 fault finding database in ComPair.

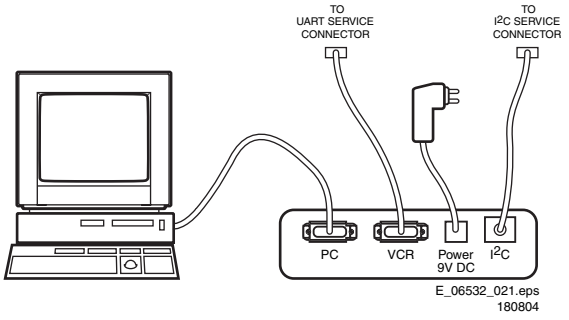


Figure 5-5 ComPair interface connection

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 (Byte blaster). 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 (> 1280x960). Below this resolution, or when a DVI monitor is used, the displayed picture will be full size.

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 packed 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.
- LVDS tool Service Manual: 3122 785 00810.
- LVDS cable 30p (for LC4.3): 3122 785 90820 (available soon).
- LVDS cable 41p -> 31p for HD PDPs (dual -> single LVDS): 3122 785 90830 (available soon).

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	32PF7320/10	32PF5320/10	26PF5320/10	26PF4310/10
Byte 0 174(dec)	0	QSS (LSB)	Mode of quasi split sound amplifier	1	1	1	1
	1	FMI	Connection of output of QSS amplifier	1	1	1	1
	2	HCO	EHT tracking mode	0	0	0	0
	3	HP2	Synchronization of OSD/Text display	1	1	1	1
	4	FSL	Forced slicing level for vertical sync	1	1	1	1
	5	TFR	DC transfer ratio of luminance signal	1	1	1	1
	6	OSVE	Black current measuring in overscan	0	0	0	0
	7	MVK (MSB)	(For Future Usage, as defined by software)	0	0	0	0
		Total Dec Values		59	59	59	59
		Total Hex Values		3B	3B	3B	3B
Byte 1 175(dec)	0	PSE	PSE	0	0	0	0
	1	OPC	OPC	0	0	0	0
	2	PRIS	PRIS	0	0	0	0
	3	CONTINUOUS FACTORY	Continuous factory mode	0	0	0	0
	4	WHITE PATTERN ON	Last color pattern status in factory mode	0	0	0	0
	5	SDM MODE	Service default mode on/off	0	0	0	0
	6	SAM MODE	Service Align mode on/off	0	0	0	0
	7	SVMA	Scavm On / Off	0	0	0	0
		Total Dec Values		0	0	0	0
		Total Hex Values		00	00	00	00
Byte 2 176(dec)	0	MUTE STATUS	Mute status	0	0	0	0
	1	TUNER AUTO MODE	Auto mode	1	1	1	1
	2	CABLE MODE	Cable/Antenna mode	0	0	0	0
	3	LAST POWER MODE	Last power status of the set	1	1	1	1
	4	CHILD LOCK MODE	Child lock enabled	0	0	0	0
	5	SURF MODE	Surf mode on/off	0	0	0	0
	6	FACTORY MODE	Factory mode on	0	0	0	0
	7	PSNS	For PAL color enhancement in ES4	1	1	1	1
		Total Dec Values		138	138	138	138
		Total Hex Values		8A	8A	8A	8A
Byte 3 177(dec)	0	RADIO/TV MODE	Radio mode or TV mode	0	0	0	0
	1	WAKE-UP MODE	WAKE-UP MODE	0	0	0	0
	2	HOTEL MODE	TV in Hotel mode	0	0	0	0
	3	HOTEL KBD LOCK	Keyboard locked	0	0	0	0
	4	HBL	HBL	0	0	0	0
	5	BLS	Blue stretch mode	1	1	1	1
	6	SL	SL	0	0	0	0
	7	CFA0	Comb filter On/Off	0	0	0	0
		Total Dec Values		32	32	32	32
		Total Hex Values		20	20	20	20
Byte 4 178(dec)	0	Signal Strength	Signal Strength Switch in MK2	0	0	0	0
	1	LPG	LPG	0	0	0	0
	2	DVD TRAY LOCK	Lock/Unlock DVD tray	0	0	0	0
	3	SCRSAVER MODE	Screen saver mode	1	1	1	1
	4	BKS	Black Stretch Mode	1	1	1	1
	5	BSD	Black Stretch Depth	1	1	1	0
	6	CRA0	Coring on SVM	1	1	1	1
	7	PIP QSS	PIP QSS	0	0	0	0
		Total Dec Values		120	120	120	88
		Total Hex Values		78	78	78	58

Byte Nr.	Bit	Feature/Mode	Description	32PF7320/10	32PF5320/10	26PF5320/10	26PF4310/10
Byte 5 179(dec)	0	FFI	Fast Filter	0	0	0	0
	1	NNR	No red reduction during blue stretch	1	1	1	1
	2	MUS	NTSC matrix	1	1	1	1
	3	GAM	Gamma control	1	1	1	1
	4	CBS	Control sequence of beam current limiting	0	0	0	0
	5	LLB	Low level of beam current limiter	0	0	0	0
	6	DSA	Dynamic skin tone angle area	1	1	1	0
	7	DSK	Dynamic skin tone angle on/ off	0	0	0	1
		Total Dec Values		78	78	78	142
		Total Hex Values		4E	4E	4E	8E
Byte 6 180(dec)	0	LTI status	LTI last status	0	0	0	0
	1	Inc_Life_Time	Inc_Life_Time	0	0	0	0
	2	PC_Mode	PC_Mode	0	0	0	0
	3	HD_Mode	HD_Mode	0	0	0	0
	4	Tact_Switch	Tact_Switch	0	0	0	0
	5	Set_In_Special_Stby	Set_In_Special_Stby	0	0	0	0
	6	Hotel_OSDDisplay	Hotel_OSDDisplay	0	0	0	0
	7	Hotel_MonitorOut	Hotel_MonitorOut	0	0	0	0
		Total Dec Values		0	0	0	0
		Total Hex Values		00	00	00	00
Byte 7 181(dec)	0	Hotel_IconMode	Hotel_IconMode	0	0	0	0
	1	DBE	DBE	1	1	1	1
	2	SD	SD	0	0	0	0
	3	Set_in_PC_Sleep_Mode	Set_in_PC_Sleep_Mode	0	0	0	0
	4	Reserved	Reserved	0	0	0	0
	5	Reserved	Reserved	0	0	0	0
	6	Reserved	Reserved	0	0	0	0
	7	Reserved	Reserved	0	0	0	0
		Total Dec Values		2	2	2	2
		Total Hex Values		02	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

Check Fuse
The power supply (various models are used) contains one fuse near the AC input connector X002.

1. Check with power supply in “off” state by means of ohmic measurement.
2. Fuse X102 may open in case of severe lightning strikes and/or failures in the power supply.
3. Check the standby signal at pin 10 of X200. ON is HIGH, OFF is LOW. During standby mode only the 3V3 is present at pin 10.

Protections Concept on Power Supply Board (two models)
1. **12 V output (pin 8 of X200):** Short-circuit protected by 2.5 A fuse X610. Over-voltage protection when output voltage is more than 40% above nominal value.
2. **Vaudio output (+18 or +24 V, depending on power supply model used); (pin 1 of X200):** Short-circuit proof (+18 V version has 2.5 A fuse X660). Over voltage protection when output voltage is more than 40% above nominal value.
3. **3V3STBY output (pin 3&4 of X200):** Short-circuit proof with auto-restart. Over voltage protection when output voltage is more than 40% above nominal value.
4. **24 V output (for inverter X520 & X530):** Short-circuit proof with auto-restart. Over voltage protection when output voltage is more than 40% above nominal value.

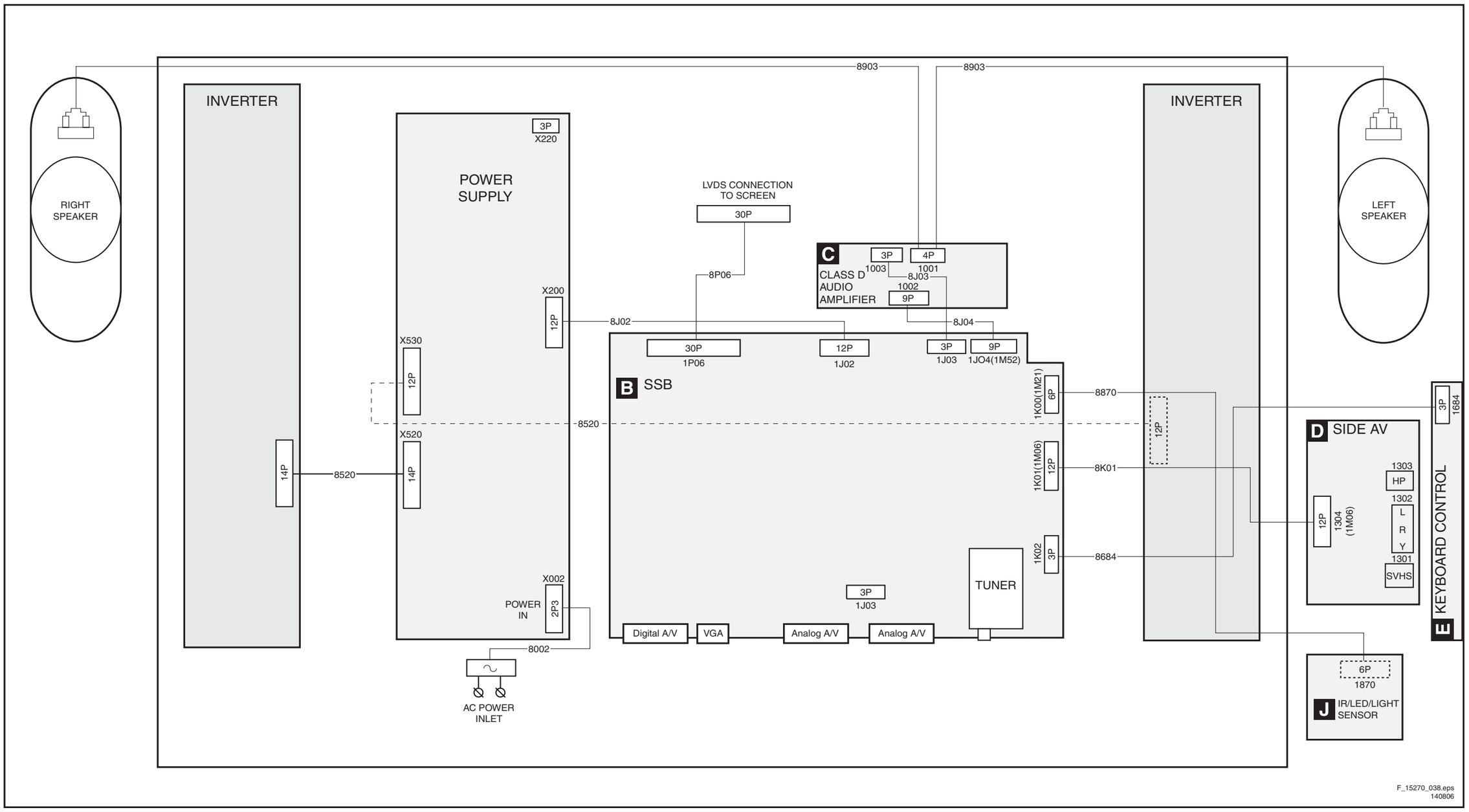
Standby Mode
1. Apply a 12 ohm load resistor of sufficient power rating to all outputs mentioned above (+12 V, +18/ 24 V, +3V3 and +24 V). Connect the STBY pin (pin 10 of X200) to logical “L” (low), i.e. to GND.
2. Over an input voltage range of 90 V_{AC} to 276 V_{AC} only the +3V3 STBY output shall be up.

Normal Mode:
1. Apply a 12 ohm load resistor of sufficient power rating to all outputs mentioned above (+12 V, +18/ 24 V, +3V3 and +24 V). Connect the STBY pin (pin 10 of X200) to logical “H” (high), i.e. to the +3V3 STBY output via a 2,2 k pull up resistor.
2. Over an input voltage range of 90 V_{AC} to 276 V_{AC} all outputs shall be up. The voltage on the +3V3 STBY output shall be 3.3 V over the entire input voltage range. The voltage on the big 400 V capacitor on the power supply should also be 400 V ±10%.

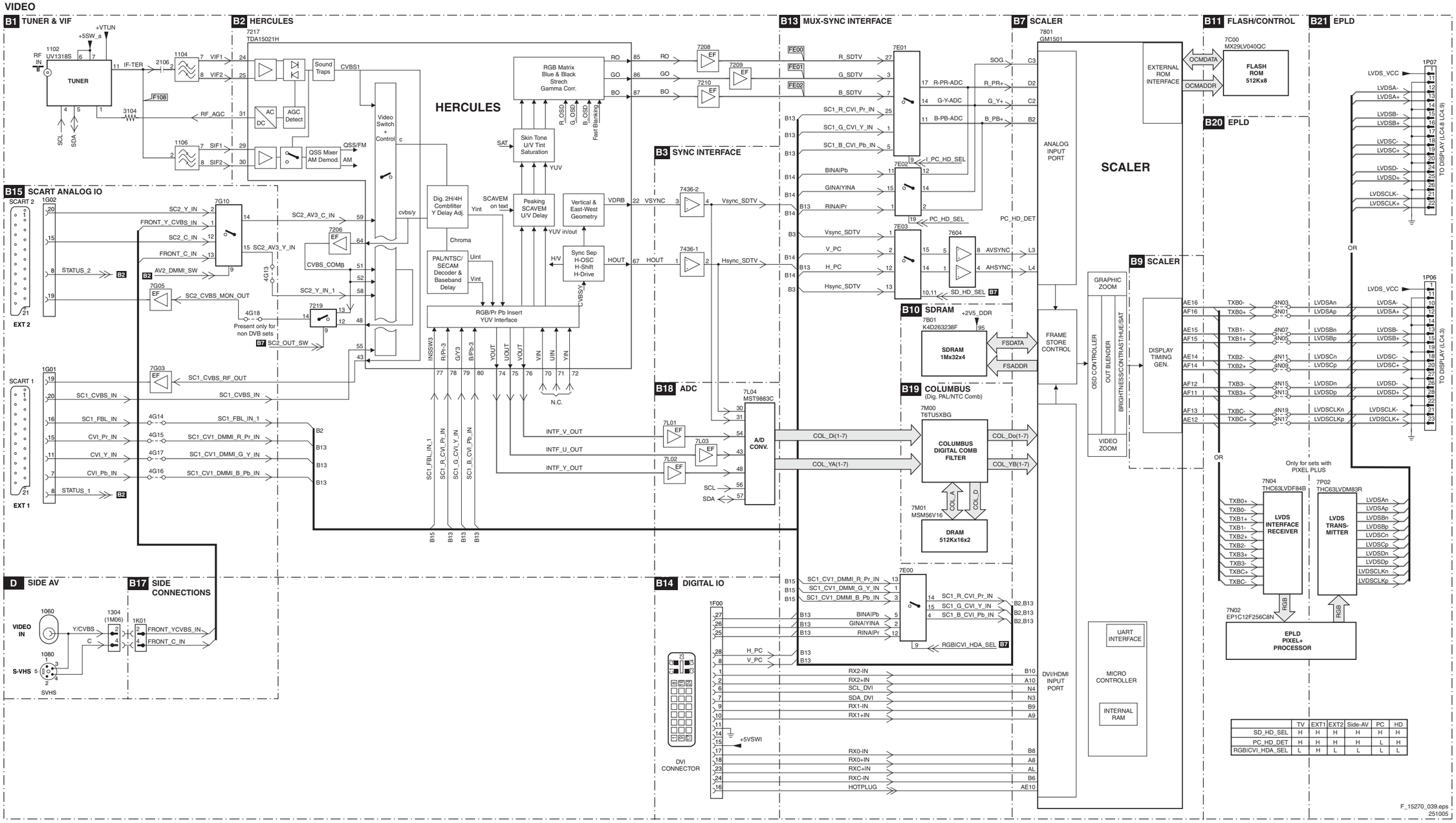
6. Block Diagrams, Test Point Overviews, and Waveforms

Wiring Diagram

WIRING

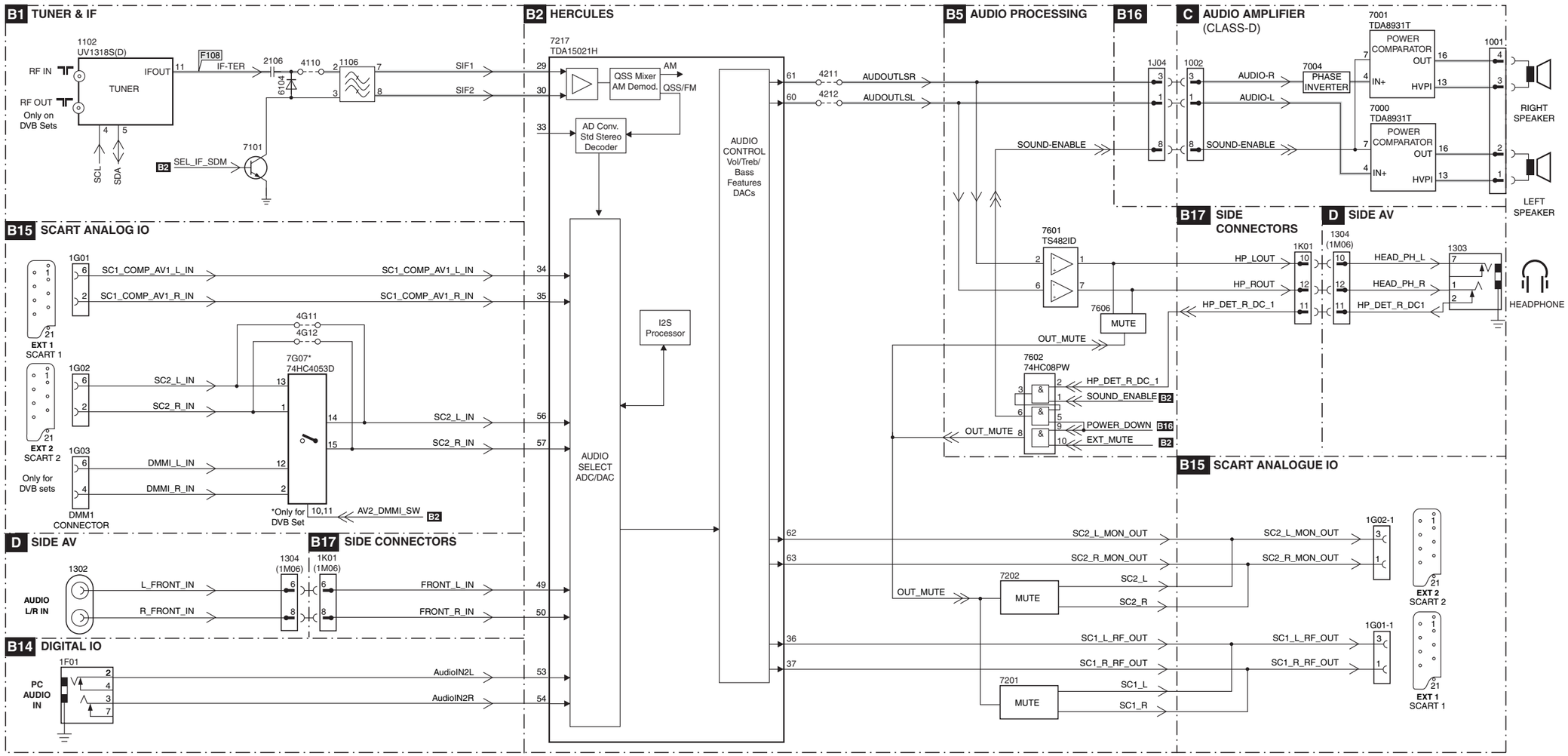


Block Diagram Video

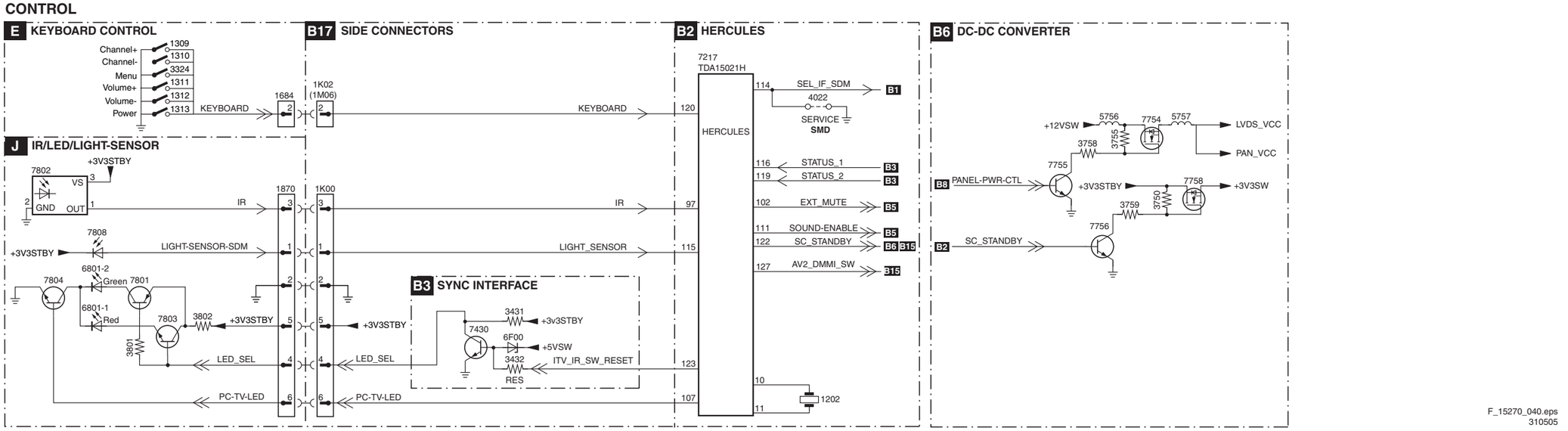


Block Diagram Audio

AUDIO



CONTROL



F_15270_040.eps
310505

Testpoint Overview Small Signal Board 6093.1

F101 C1 F117 D2 F216 B3 F233 B3 F249 B2 ***F737 A3*** F906 B6 FC10 B4 FD15 C7 ***FE13 C5*** FG01 D4 FG17 D6 FG35 D3 FG53 D4 FJ13 A2 FK02 B1 FN02 A6 FN18 B6 FN34 A7 FP15 A6 I201 A2 I217 B3 I233 B2 I255 B3 I274 A1 I430 A1 I604 A1 I706 A4 I740 B3 IE15 D4 IG69 D3
F102 D2 F201 A2 F218 A2 F234 B3 F250 B3 ***F738 A3*** F907 B5 FD00 C7 FD16 C7 FF00 D6 FG02 D3 FG18 D5 FG36 D4 FJ14 A2 FK03 B1 FN03 A6 FN19 B5 FN35 A7 FP16 A6 I202 A2 ***I218 A3*** I234 B2 I256 B3 I275 A3 I440 B3 I605 A2 I708 A5 I741 B3 IE16 C4 IG73 D4
F103 C1 F202 A2 F219 A2 F235 B3 F501 A2 F743 B3 F908 C5 FD01 D7 FD17 B6 ***FE00 C5*** FF01 D6 FG03 D4 FG19 D5 FG37 D3 FG56 D4 FJ15 A7 FK04 B1 FN04 A7 FN20 A7 FP01 A6 FP17 A7 I203 B2 I219 B3 I235 B2 I257 B3 I277 A3 I443 B3 I606 A2 I709 A5 I742 B3 IE17 C4 IG75 D5
F104 D2 F203 A2 ***F220 A3*** F236 C3 F502 A2 ***F754 A5*** F909 C5 FD02 D7 ***FE01 C5*** FF02 D4 FG04 D3 FG20 D5 FG38 D3 FJ00 A7 FJ16 A7 FK05 B1 FN05 A7 FN21 A7 ***FP02 A6*** I101 D2 I204 B2 I220 B3 I236 B2 I258 B2 I278 A3 I449 A3 I607 A1 I710 A4 I747 A5 IE18 C4 IG76 D6
F105 D1 F204 B3 ***F221 A3*** F237 B2 ***F503 A2*** F755 A6 F910 C6 FD03 D7 ***FE02 C4*** FF03 D7 FG05 D3 FG21 D5 FG39 D4 FJ01 A5 FJ17 A7 FK06 B1 FN06 A7 FN22 A7 FP03 A6 I102 C2 I205 B2 I221 A2 I237 B2 I259 B3 I283 B3 I450 A3 I608 A1 I711 A4 I748 A5 IE19 D5 IG78 D5
F106 D2 F205 B2 F222 B2 F238 B2 ***F504 A2*** F800 B7 FB01 B7 FD04 C7 ***FE03 C4*** FF04 D7 FG06 D3 FG22 D5 FG40 D7 FJ02 A4 FJ18 A7 FK07 C1 FN07 A7 FN23 A7 ***FP04 A6*** I103 C2 I206 B2 I222 A2 I238 A2 I262 B2 I284 B3 I451 A3 I610 A1 I712 A4 I749 A5 IE20 D5 IG79 D5
F107 C1 F206 B2 F223 B2 F239 B2 F505 A3 F801 B6 FC00 B5 FD05 C6 FE03 B5 FF05 D7 FG07 D3 FG23 D4 FG41 D3 FJ03 A5 FJ19 A7 FK08 C1 FN08 A7 FN24 A6 ***FP05 A6*** I104 C2 I207 B2 I223 A2 I239 A3 I264 A2 I285 B3 I452 A3 I611 B1 I713 A4 I750 A6 IE21 D5 IG80 D5
F108 C2 F207 B2 F224 A2 F240 B2 F601 A1 F802 C5 FC01 B5 FD06 C6 FE04 D5 FF06 D6 FG08 D3 FG24 D3 FG42 D4 FJ04 A5 FJ20 A7 FK09 C1 FN09 A7 FN25 B6 FP06 A6 I105 C2 I208 B2 I224 A3 I240 A3 I265 B3 I288 B3 I453 A1 I612 A1 I714 A4 I751 A5 IE22 D5 IJ01 A3
F109 C2 F208 B2 F225 A3 F241 B3 F602 A2 F803 B5 FC02 B5 FD07 C7 FE05 C5 FF07 D6 FG09 D3 FG25 D3 FG43 D4 FJ05 A4 FJ21 A5 FK10 B1 FN10 A7 FN26 A7 FP07 A6 I106 C2 I209 B2 I225 A2 I241 A2 I266 B3 I289 A2 I454 A1 I613 A1 I715 A4 I752 A5 IE23 C5 IJ02 A3
F110 B2 F209 B2 F226 A3 F242 B2 F603 A1 F804 B5 FC03 B5 FD08 C7 FE06 D5 FF08 D3 FG10 D2 FG26 D5 FG44 D4 FJ06 A4 FJ22 A5 FK11 A1 FN11 B6 FN27 A7 FP08 A7 I107 C2 I210 A3 I226 B2 I242 A2 I267 B3 I290 A2 I501 A3 I614 A1 I716 A4 I753 A5 IE24 C5 IJ03 A4
F111 B2 F210 C2 F227 C3 F243 B2 F604 A2 F900 C5 FC04 B5 FD09 C7 FE07 B7 FF09 D7 FG11 D3 FG27 D5 FG45 D4 FJ07 A5 FJ23 A5 FM01 C4 FN12 A6 FN28 A7 FP09 A7 I108 C2 I211 A3 I227 B2 I243 A3 I268 B3 I291 A2 I502 A3 I615 A1 I731 A4 I754 A5 IE25 D5 IJ04 A3
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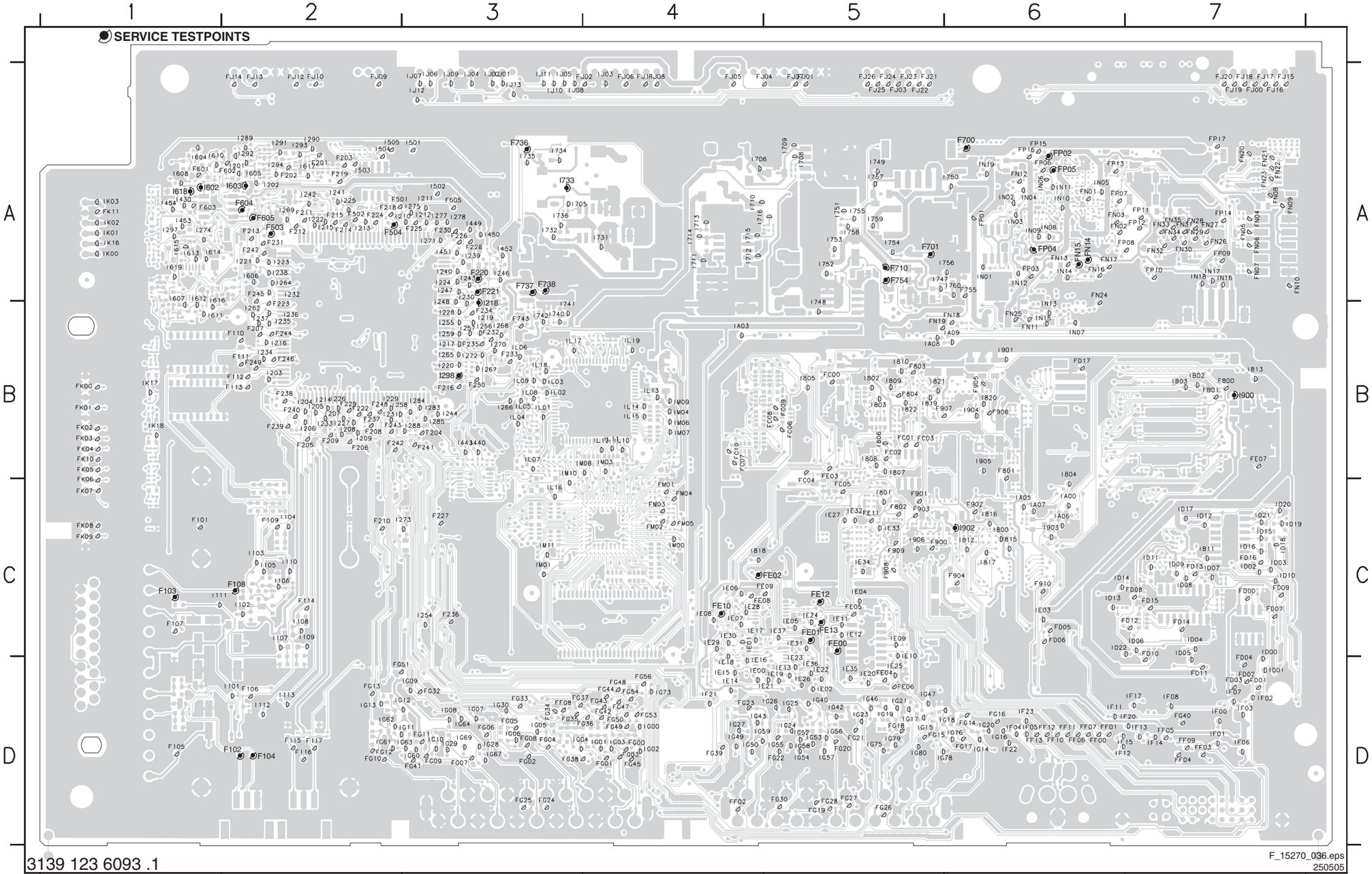
F114 C2 F213 A2 ***F230 A3*** F246 B2 F701 A5 F903 C5 FC07 B4 FD12 C7 ***FE10 C4*** FF12 D6 FG14 D6 FG32 D3 FG49 D4 FJ10 A2 FJ26 A5 FM04 C4 ***FN15 A6*** FN31 A7 FP12 A7 I111 C1 I214 B2 I230 A3 I247 A3 I271 A3 I294 A2 I505 A2 ***I618 A1*** I734 A3 I757 A5 IE28 C4 IJ07 A3
F115 D2 F214 A2 F231 A2 F247 A2 F710 A5 F904 C6 FC08 B5 FD13 C7 FE11 C5 FF13 D6 FG15 D5 FG33 D3 FG50 D4 FJ11 A4 FK00 B1 FM05 C4 FN16 A6 FN32 A7 FP13 A6 I112 D2 I215 A2 I231 B2 I248 A3 I272 B3 I297 A1 ***I602 A1*** I619 A1 I735 A3 I758 A5 IE29 C4 IJ08 A3
F116 D2 F215 A2 F232 B3 F248 B2 F736 A3 F905 B6 FC09 B5 FD14 C7 ***FE12 C5*** FG00 D4 FG16 D6 FG34 D3 FG51 C2 FJ12 A2 FK01 B1 FN01 A6 FN17 A6 FN33 A7 FP14 A7 I113 D2 I216 B2 I232 A2 I254 C3 I273 C3 ***I298 B3*** ***I603 A2*** I705 A3 I736 A3 I759 A5 IE30 C4 IJ09 A3
I760 A6 IE31 C5 IJ10 A3
I800 C6 IE32 C5 IJ11 A3
I801 C5 IE33 C5 IJ12 A3
I802 B5 IE34 C5 IJ13 A3
I803 B5 IE35 D5 IK00 A1
I804 B6 IE36 C5 IK01 A1
I805 B5 IE37 C5 IK02 A1
I806 B5 IF00 D7 IK03 A1
I807 B5 IF01 D7 IK16 A1
I808 B5 IF02 D7 IK17 B1
I809 B5 IF03 D7 IK18 B1
I810 B5 IF04 D6 IL01 B3
I811 C7 IF05 D6 IL02 B3
I812 C6 IF06 D7 IL03 B3
I813 B7 IF07 D7 IL04 B3
I815 C6 IF08 D7 IL05 B3
I816 C6 IF11 D6 IL06 B3
I817 C6 IF12 D6 IL07 B3
I818 C4 IF13 D7 IL08 B3
I819 B5 IF14 D7 IL09 B3
I820 B6 IF15 D6 IL10 B4
I821 B5 IF17 D7 IL11 B4
I822 B5 IF20 D7 IL12 B4
I900 B7 IF21 D4 IL13 B4
I901 B6 IF22 D6 IL14 B4
I902 C6 IF23 D6 IL15 B4
I903 C6 IG00 D4 IL16 C3
I904 B6 IG01 D4 IL17 B3
I905 B6 IG02 D4 IL18 B3
I906 C5 IG03 D4 IL19 B4
IA00 C6 IG04 D3 IM00 C4
IA03 B4 IG05 D3 IM01 C3
IA05 C6 IG06 D3 IM03 B4
IA06 C6 IG07 D3 IM04 B4
IA07 C6 IG08 D3 IM06 B4
IA08 B5 IG09 D3 IM07 B4
IA09 B6 IG10 D3 IM08 B4
IB02 B7 IG11 D3 IM09 B4
IB03 B7 IG12 D3 IM10 B3
ID00 C7 IG13 D2 IM11 C3
ID01 D7 IG14 D6 IN01 A6
ID02 C7 IG15 D5 IN02 A6
ID03 C7 IG16 D6 IN03 A6
ID04 C7 IG17 D5 IN04 A6
ID05 C7 IG18 D6 IN05 A6
ID06 C7 IG19 D5 IN06 A6
ID07 C7 IG20 D6 IN07 B6
ID08 C7 IG21 D5 IN08 A6
ID09 C7 IG23 D5 IN09 A6
ID10 C7 IG24 D5 IN10 A6
ID11 C7 IG25 D5 IN11 A6
ID12 C7 IG26 D5 IN12 A6
ID13 C6 IG27 D4 IN13 B6
ID14 C6 IG28 D3 IN14 A6
ID15 C7 IG29 D3 IN15 B6
ID16 C7 IG30 D3 IN16 A7
ID17 C7 IG40 D5 IN17 A7
ID18 C7 IG42 D5 IN18 A7
ID19 C7 IG43 D4 IN19 A6
ID20 C7 IG46 D5
ID21 C7 IG47 D5
ID22 C6 IG49 D4
IE00 D4 IG50 D4
IE01 C4 IG52 D5
IE02 D5 IG53 D5
IE03 C6 IG54 D5
IE04 C5 IG55 D5
IE05 C5 IG56 D5
IE06 C4 IG57 D5
IE07 C4 IG58 D5
IE08 C4 IG59 D4
IE09 C5 IG60 D3
IE10 C5 IG61 D2
IE11 C5 IG62 D2
IE12 C5 IG63 D3
IE13 D5 IG64 D3
IE14 D4 IG67 D3



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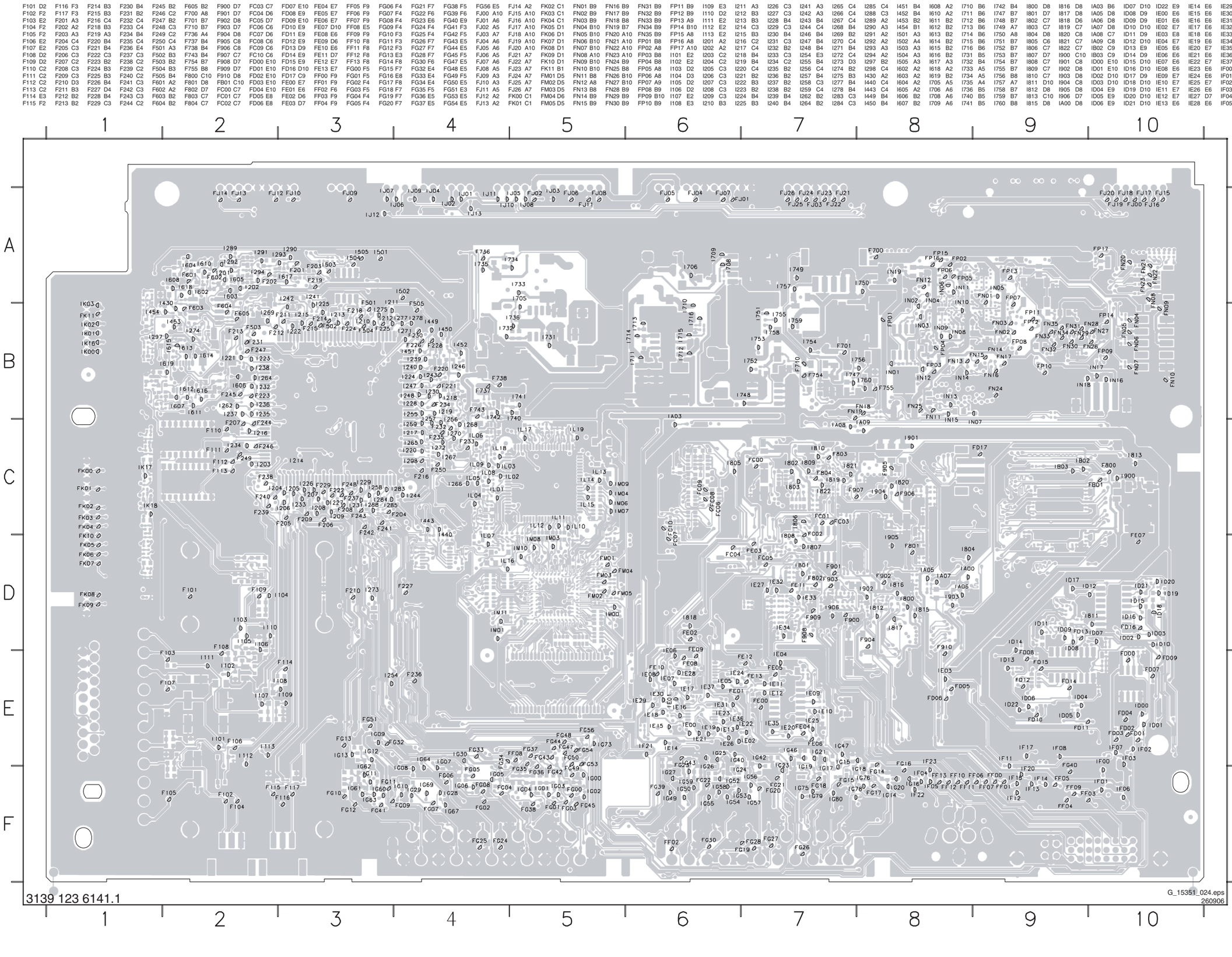
Testpoint Overview Small Signal Board 6141.1



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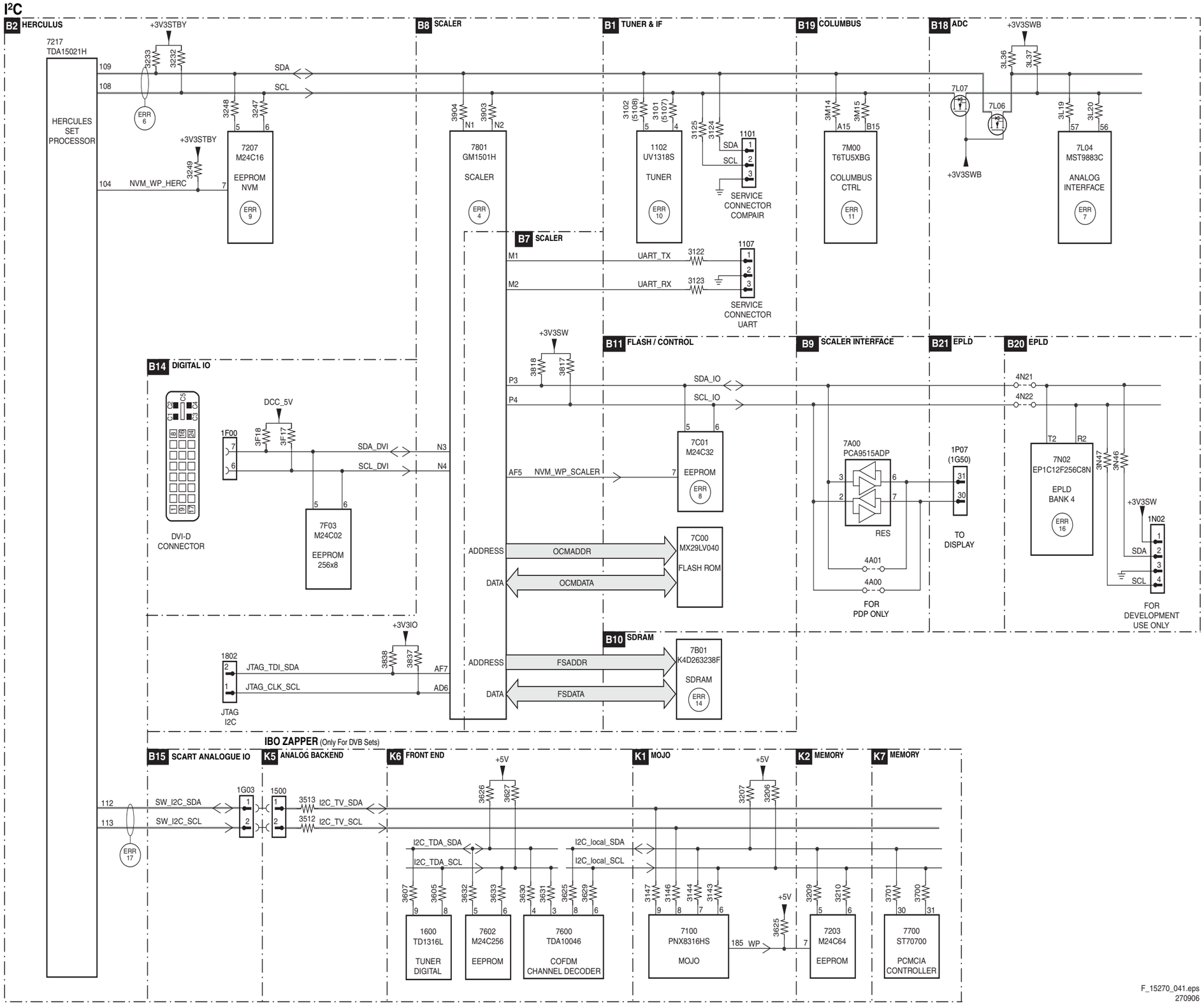
I2C IC Overview



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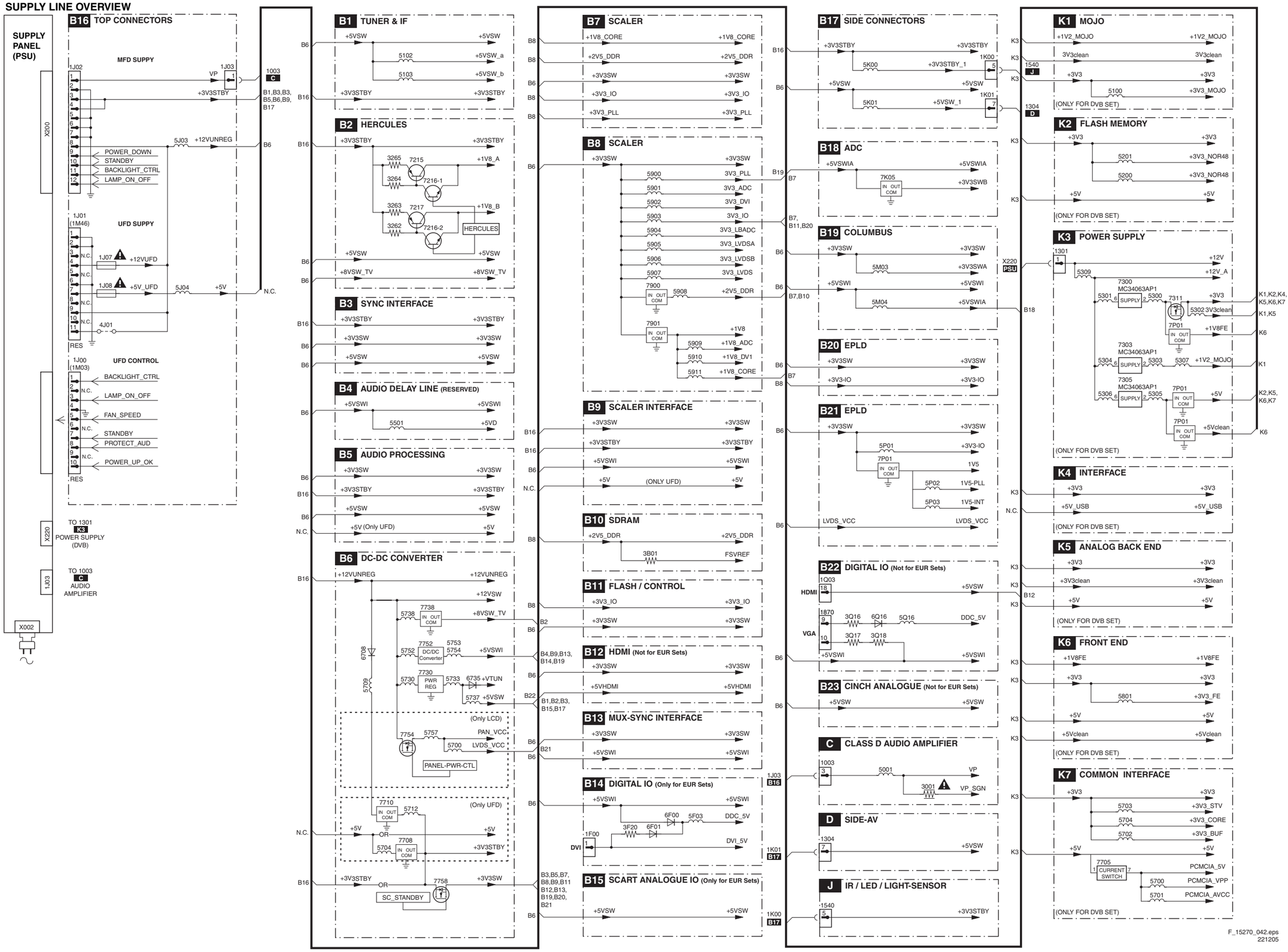
Supply Voltage Overview

SUPPLY LINE OVERVIEW



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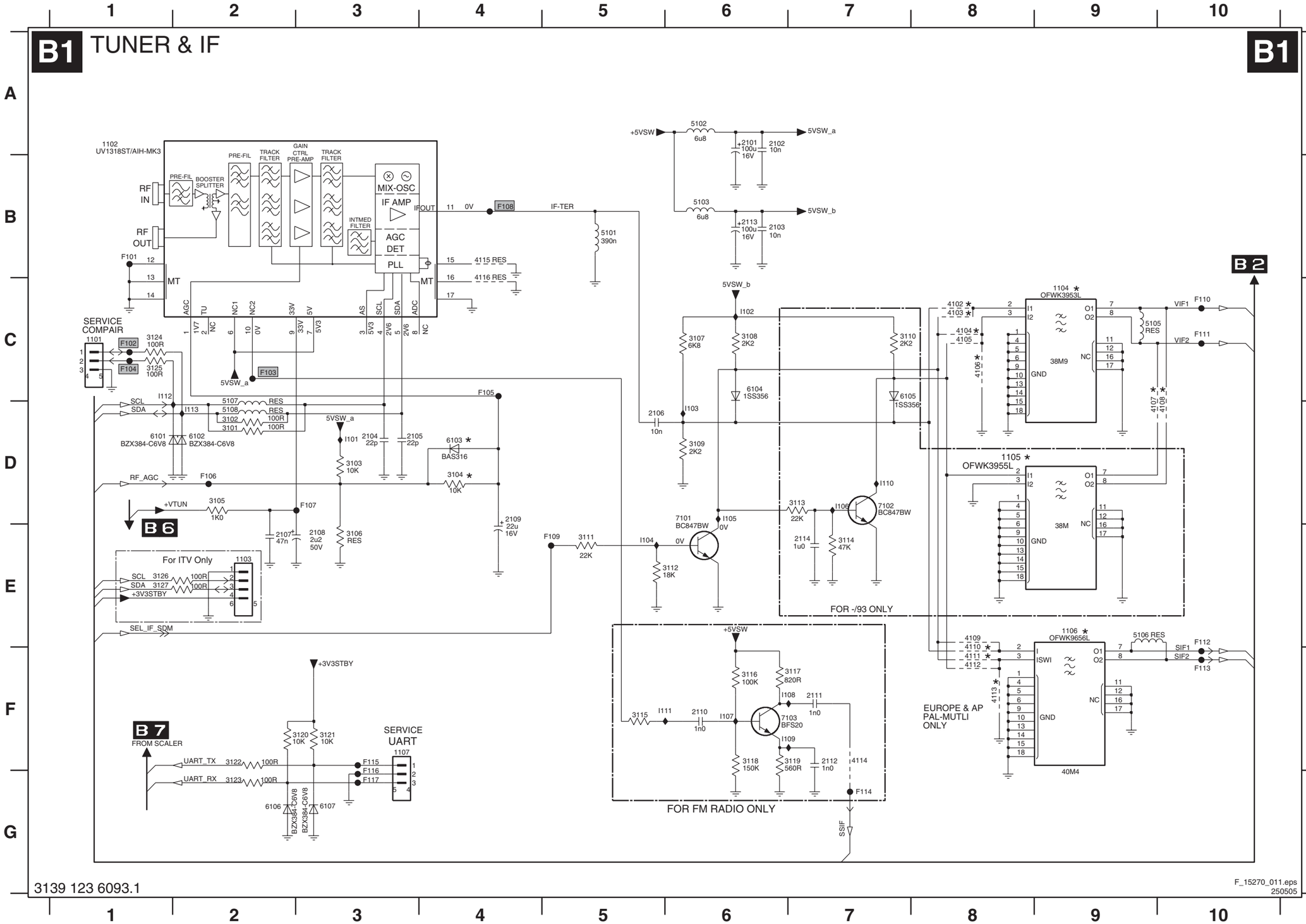
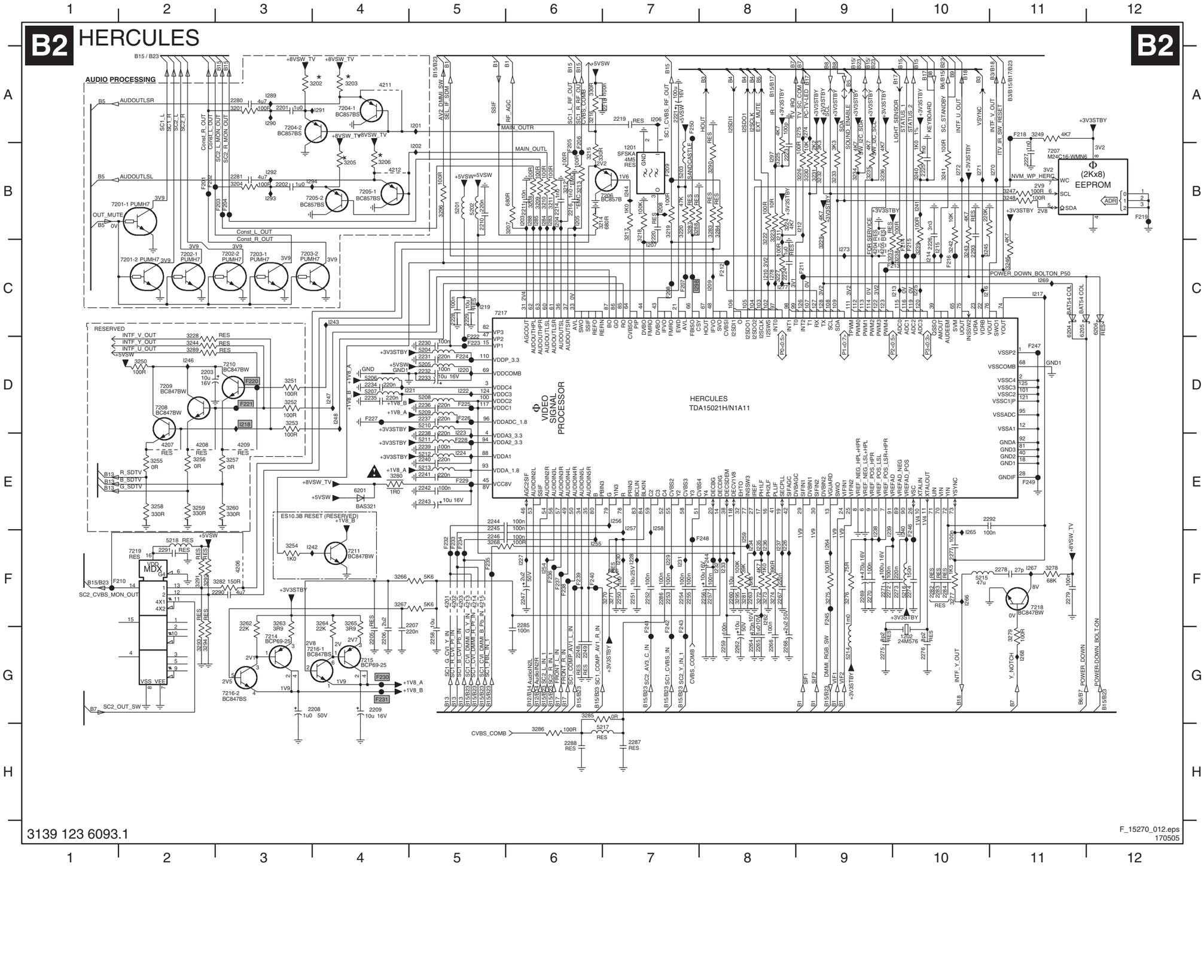
7. Circuit Diagrams and PWB Layouts

SSB: Tuner and VIF



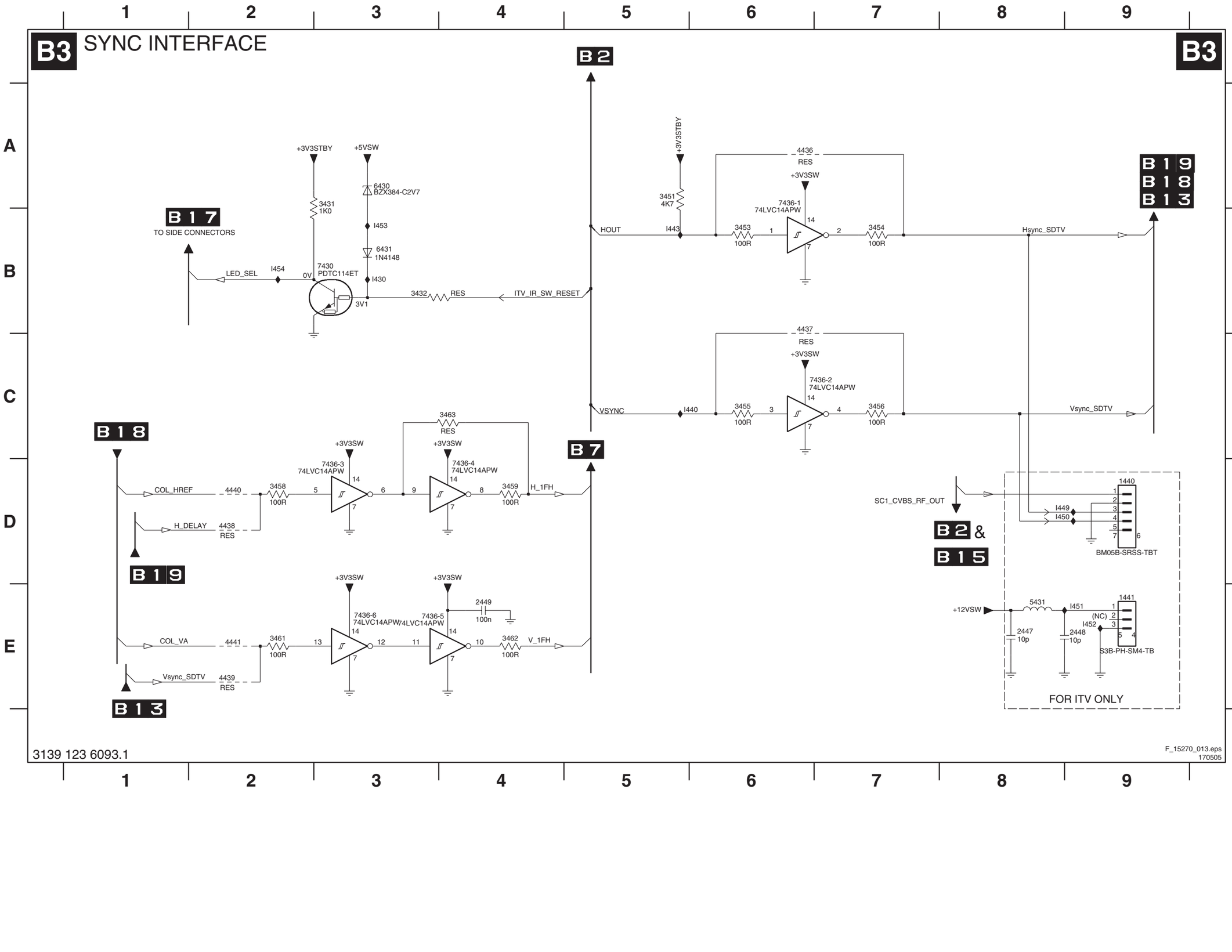
1101 C1 F106 D2
1102 A1 F107 D3
1103 E2 F108 B4
1104 C9 F109 E5
1105 D8 F110 C10
1106 E9 F111 C10
1107 F3 F112 E10
2101 A6 F113 F10
2102 A6 F114 G7
2103 B6 F115 F3
2104 D3 F116 G3
2105 D3 F117 G3
2106 D5 I101 D3
2107 E2 I102 C6
2108 E3 I103 D6
2109 D4 I104 E5
2110 F6 I105 D6
2111 F7 I106 D7
2112 F7 I107 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
3110 C7
3111 E5
3112 E5
3113 D7
3114 E7
3115 F5
3116 F6
3117 F7
3118 F6
3119 F6
3120 F3
3121 F3
3122 F2
3123 G2
3124 C1
3125 C1
3126 E1
3127 E1
4102 C8
4103 C8
4104 C8
4105 C8
4106 C8
4107 D9
4108 D10
4109 E8
4110 F8
4111 F8
4112 F8
4113 F8
4114 F7
4115 B4
4116 C4
5101 B5
5102 A6
5103 B6
5105 C9
5106 E9
5107 D2
5108 D2
6101 D1
6102 D2
6103 D4
6104 C6
6105 C7
6106 G2
6107 G3
7101 D6
7102 D7
7103 F6
F101 B1
F102 C1
F103 C2
F104 C1
F105 C4

SSB: Hercules



1201 B7	3215 B6	5209 D5	I216 C10
1202 G10	3216 A6	5210 D5	I217 C11
2201 A3	3217 B7	5211 E5	I218 D3
2202 B3	3218 B7	5212 E5	I219 C5
2203 D2	3219 B7	5213 E5	I220 D5
2205 G4	3220 B7	5214 G9	I221 D5
2206 G4	3222 B8	5215 F10	I222 D5
2207 F5	3223 B8	5216 F10	I223 D5
2208 G4	3224 B8	5217 H7	I224 E5
2209 G4	3225 B8	5218 F2	I225 C10
2210 B5	3226 B9	6201 E4	I226 F8
2211 B6	3227 C8	6204 C11	I227 F6
2214 B6	3228 D2	6205 C11	I228 F7
2216 B6	3229 C9	6206 C12	I229 F7
2218 A7	3230 B9	7201-1 B1	I230 F7
2219 A7	3231 B9	7201-2 C2	I231 F7
2220 B7	3232 B9	7202-1 C2	I232 F8
2221 A7	3233 B9	7202-2 C3	I233 F8
2223 B8	3234 B9	7203-1 C3	I234 F8
2224 C8	3235 B9	7203-2 C3	I235 F8
2225 B10	3236 B9	7204-1 A4	I236 F8
2226 C10	3237 C9	7204-2 A3	I237 F8
2227 B11	3238 C10	7205-1 B4	I238 F9
2228 C5	3239 C10	7205-2 B4	I239 F9
2229 C5	3240 B10	7206 B6	I240 F10
2230 D5	3241 B10	7207 B11	I241 B10
2231 D5	3242 C10	7208 D2	I242 F4
2232 D5	3243 C10	7209 D2	I243 C4
2233 D5	3244 D2	7210 D3	I244 B7
2234 D4	3245 C10	7211 F4	I246 D2
2235 D4	3246 C11	7214 G3	I247 D4
2236 D5	3247 B11	7215 G4	I248 D4
2237 D5	3248 B11	7216-1 G3	I254 F6
2238 E5	3249 A11	7216-2 G3	I255 F6
2239 E5	3250 D2	7217 C6	I256 E7
2240 E5	3251 D3	7218 F11	I257 E7
2241 E5	3252 D3	7219 F2	I258 E7
2242 E5	3253 D3	F201 B2	I259 F8
2243 E5	3254 F3	F202 B2	I262 F8
2244 E5	3255 E2	F203 B3	I264 F9
2245 E5	3256 E2	F204 B3	I265 F10
2246 F5	3257 E3	F205 B6	I266 F10
2247 F6	3258 E2	F206 B6	I267 F11
2248 G6	3259 E2	F207 C7	I268 G11
2249 G6	3260 E3	F208 C7	I269 C11
2250 F7	3262 F3	F209 B7	I270 B11
2251 F7	3263 F3	F210 F1	I271 B10
2252 F7	3264 F4	F211 C9	I272 B10
2253 F7	3265 F4	F212 C8	I273 C9
2254 F7	3266 F4	F213 C10	I274 A9
2255 F7	3267 F4	F214 C10	I275 A9
2256 F8	3268 F5	F215 C10	I277 C8
2257 F8	3270 F7	F216 C10	I278 C8
2258 G5	3271 F7	F218 A11	I283 B6
2259 G8	3272 F8	F219 B12	I284 B6
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



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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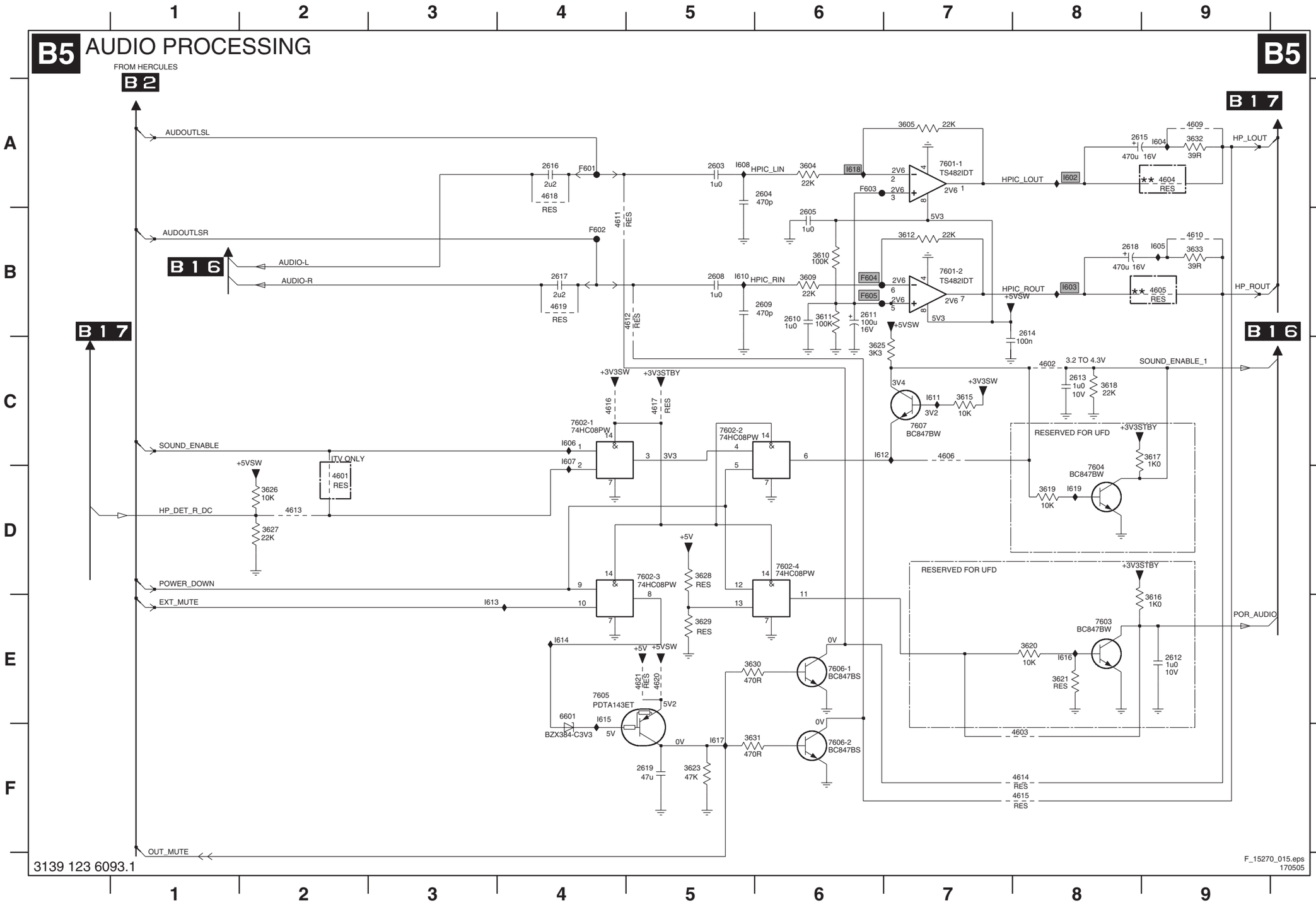
SSB: Audio Processing



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 — F710 +3V3STBY

3708 10K — +12VUNREG

6708 SS24 — 6709 SS14 — 3709 6K8 — 2708 RES — 2709 47u 16V

I710 — 5709 10u

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

2710 10u — 2711 10u — SUP_GND2

I712 — 5712 33u — I713 — 5713 10u — 2716 470u 16V

I714 — I715 — 2715 22n — I716 — 3712 5K6 1%

6712 SS36 — 2714 220p — 3716 4K7 — 3713 3K3 1% — 2713 470u 16V

SUP_GND2

FOR UFD ONLY

FOR LCD ONLY

+5VSWI — +3V3STBY — +12VSW

5758 RES — 5755 RES — 5756

I756 — 7754 SI2301BDS-T1-E3 — SS = 4V9

11V5 — I757 — I749 — I750 — 1751 RES

5757 — 3755 10K — 2751 100n — I747 6V8

5759 RES — 7753 L4940D2T12: IN, OUT, COM

I759 — PAN_VCC — 5700 — F700 — LVDS_VCC 11V5

B21 TO EPLD

3758 15K — 3760 100R — 2759 RES — 2752 47u 16V — 2700 RES — 2701 100p

B8 FROM SCALER

7755 PDTC114ET — I760 — PANEL-PWR-CTL — F755 (0V) 0V6

2760 1u0 25V

FOR UFD ONLY

SUPPLY TO SCALER

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

+12VSW — I751 — 11V7

5752 10u — 3751 1R0 — 3752 1R0

IPK OSC — REFERENCE REGULATOR

I752 — 6 — 11V7

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

GND — SUP_GND3 — 2754 RES — 3754 3K3 1% — I754

2755 4n7

3734 2K2 — I755 — I758

2756 470p — 5753 220u — 6751 SS14

SUP_GND3

B7 TO SCALER CELL — B4 TO LIPSYNC

5754 10u — F754 +5VSWI 5V4

2757 470u 16V — 2758 470u 16V

+3V3STBY — 3V2

B2 FROM HERCULES

3750 22K — 2750 2u2 — 2762 22u16V

3759 1K0 — I748 — 7758 SI9433BDY-T1-E3 SI4433DY

SC_STANDBY — 3V1 — 7756 PDTC114ET

3761 100R — 2761 1u0 25V

FOR UFD ONLY

+3V3SW

SUPPLY TO TUNER & HERCULES

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

+12VSW — 5730 10u — I731 — I705

2730 10u 25V — 2734 22n — 2733 220p — 3736 4K7

SUP_GND1

I733 — F736 32V9 +VTUN — TO TUNER CELL B1

7735 BC817-25 — I735 — I734 — 3735 1K0

6735 BAV99 — 2736 22u 35V — 6736 BZX384-C33 — 2735 470p

5733 220u — 6733 SS14

5735 1m0

B2 TO HERCULES CELL

3732 1K0 1% — 3733 3K3 1% — I732 — I736 — 5737 10u

F737 5V2 +5VSW — F738 8V +8VSW_TV — F743 POWER_DOWN — B5

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

7738 L78M08CDT: IN, COM, OUT

+12VSW — 5738 — 2738 47u 16V — 2739 47u 16V

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

+12VUNREG — 6740 BZX384-C8V2 — I740 — 3740 1K5 — 3741 1K5 — I741 — 7741 BC847BW — 2741 220n

FOR UFD ONLY

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3139 123 6093.1

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

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SSB: Scaler

B7 SCALER

B7

1801 B12 7801-12 A4
1802 G14 7801-4 C11
2800 A1 7801-5 E11
2801 A1 7801-6 F4
2802 A1 7801-9 G11
2803 A1 F800 A1
2804 A2 F801 B3
2805 A2 F802 A9
2806 A2 F803 G14
2807 A2 F804 G14
2808 A2 I800 G2
2809 A3 I801 B12
2810 A3 I802 F10
2811 A3 I803 F10
2812 A3 I804 E12
2813 B2 I805 E12
2814 B3 I806 F12
2815 A9 I807 F12
2816 A9 I808 F12
2817 A10 I809 G12
2818 A10 I810 G12
2819 A10 I811 G14
2820 A12 I812 F3
2821 A12 I813 A1
2822 A12 I815 G3
2823 A10 I816 G2
2824 A12 I817 H5
3800 B3 I818 F3
3801-1 C1 I819 I10
3801-2 C1 I820 I10
3801-3 C1 I821 I10
3801-4 C1 I822 G12
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

+2V5_DDR F800 2800 100u 16V I813 2801 2802 2803 2804 2805 2806 2807 2808 2809 2810 2811 2812 100n

+2V5_DDR +1V8_CORE 7801-12 GM1501-LF-BD SYSTEM FS_2.5 VDDA18_DLL K25 VSSA18_DLL

B11 FROM SDRAM — #RESET — RESET_ K1

IR0|GPIO_29 M3 IR1|GPIO_28 M4

B10 FROM SDRAM — FSVREF — 3800 10K R4 F801 EXTCLK|GPI_02 J24 FSVREF1 K26 FSVREFVSS1 2813 2814 100n 100n FSVREF2 W25 FSVREFVSS2 W24

FSDATA[0:31] 3801-4 3801-3 3801-2 3801-1 3802-4 3802-3 3802-2 3802-1 3803-4 3803-3 3803-2 3803-1 3804-1 3804-2 3804-3 3804-4 3805-4 3805-3 3805-2 3805-1 3806-1 3806-2 3806-3 3806-4 3807-4 3807-3 3807-2 3807-1 3808-2 3808-3 3808-4 3808-1 5 6 7 8 22R

FSDATAU0 E24 FSDATAU1 E25 FSDATAU2 E26 FSDATAU3 G26 FSDATAU4 G27 FSDATAU5 H26 FSDATAU6 H24 FSDATAU7 J25 FSDATAU8 T26 FSDATAU9 R25 FSDATAU10 P24 FSDATAU11 P26 FSDATAU12 N24 FSDATAU13 N26 FSDATAU14 M25 FSDATAU15 L24 FSDATAU16 L25 FSDATAU17 M26 FSDATAU18 M25 FSDATAU19 N25 FSDATAU20 N23 FSDATAU21 P25 FSDATAU22 R26 FSDATAU23 R24 FSDATAU24 K24 FSDATAU25 J26 FSDATAU26 H25 FSDATAU27 G25 FSDATAU28 G24 FSDATAU29 F24 FSDATAU30 F25 FSDATAU31 F26

FSDATA0 FSDATA1 FSDATA2 FSDATA3 FSDATA4 FSDATA5 FSDATA6 FSDATA7 FSDATA8 FSDATA9 FSDATA10 FSDATA11 FSDATA12 FSDATA13 FSDATA14 FSDATA15 FSDATA16 FSDATA17 FSDATA18 FSDATA19 FSDATA20 FSDATA21 FSDATA22 FSDATA23 FSDATA24 FSDATA25 FSDATA26 FSDATA27 FSDATA28 FSDATA29 FSDATA30 FSDATA31

FSADDR0 AD25 FSADDRU0 … FSADDR11 AB24 FSADDRU11 — 3809-4 3809-3 3809-2 3809-1 3810-1 3810-2 3810-3 3810-4 3811-4 3811-3 3811-2 3811-1 6 7 8 22R

FSADDR(0) FSADDR(1) FSADDR(2) FSADDR(3) FSADDR(4) FSADDR(5) FSADDR(6) FSADDR(7) FSADDR(8) FSADDR(9) FSADDR(10) FSADDR(11)

FSBKSEL0 Y25 FSBKSELU0 — FSBKSEL1 Y26 FSBKSELU1

FSDQM0 T25 FSDQMU0 — FSDQM3 T24 FSDQMU3 — 3812-1 3812-3 3812-4 3812-2 6 7 8 22R

FSDQM(0) FSDQM(1) FSDQM(2) FSDQM(3)

FSWE U26 FSWEU — FSCKE W26 FSCKEU — FSCAS V25 FSCASU — FSRAS V24 FSRASU — 3813-1 3813-2 3813-3 3813-4 6 7 8 22R

FSWE FSCAS FSRAS FSCKE

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

+3V3_PLL F802 2815 22u 16V 2816 2817 2818 2819 100n 2820 2821 2822 100n

7801-11 GM1501-LF-BD CLK-SYN — H3 J3 F4 G1 H1 J1 F2 — VDDA33_SDDS VDDA33_DDDS VDDA33_RPLL VDDA33_FPLL VDD2D33_SDDS VDD2D33_DDDS VDDD33_PLL

2823 22p G3 TCLK — VSSA33_SDDS VSSA33_DDDS VSSA33_RPLL VSSA33_FPLL VSS2D33_SDDS VSS2D33_DDDS VSSD33_PLL — H2 J2 F3 H4 J4 K4 G2

XTAL G4 — 2824 22p — I801 — K2 ACS_RST_HD — 3824 3K3 — 1801 14M31818 SMD-49

B11 TO FLASH / CONTROL — 7801-4 GM1501-LF-BD OCM-ADR

OCMADDR(0) … OCMADDR(9) — AA1 AA2 AA3 Y1 Y2 Y3 W1 W2 W3 V1 — OCMADDR0 … OCMADDR9(GPIO_G11_B1)

OCMADDR10(GPIO_G11_B2) … OCMADDR19(GPIO_22) — V2 V3 V4 U1 U2 U3 U4 T1 T2 T3 — OCMADDR(10) … OCMADDR(19)

B11 TO FLASH / CONTROL — 7801-5 GM1501-LF-BD OCM_DATA

OCMDATA(0) … OCMDATA(7) — AD4 AF3 AE3 AD3 AF2 AE2 AD2 AF1 — OCMDATA0 … OCMDATA7

OCMDATA8(GPIO_G10_B0) … OCMDATA15(GPIO_G10_B7) — AE1 AD1 AC1 AC2 AC3 AB1 AB2 AB3

3825-3 3825-2 3825-1 3826-3 3826-1 3826-4 3825-4 3826-2 3826-4 6 7 8 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 — OCM_UDO|GPIO_26 M1 UART_TX — B1 TO TUNER

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 VODD|HSOUT|GPIO_06 — V_1FH I800 C20 VVS|GPIO_05 — H_1FH I816 D19 VHS_CSYNC|GPIO_04

FROM SYNC INTERFACE B3

COL_YB(1:8) — COL_YB(1) A23 … COL_YB(8) A21 — VGRN0|GPIO_G02_B0 … VGRN7|GPIO_G02_B7

COL_Do(1:7) — COL_Do(1) C19 … COL_Do(7) A18 — VRED0|GPIO_G01_B0 … VRED7|GPIO_G01_B7

B12 FROM HDMI — HDMI_CbCr(0) B25 … HDMI_CbCr(7) B23 — VBLU0|GPIO_G03_B0 … VBLU7|GPIO_G03_B7

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

7801-6 GM1501-LF-BD VIDEO

B13 FROM MUX-SYNC INTF — 3823 RES — SVCLK|GPI_0 D16 — SVHSYNC|GPIO_02 C14 HDMI_VHS — SVVSYNC|GPIO_01 B14 HDMI_VVS — SVODD|GPIO_00 A14 3822 100R

B12 FROM HDMI — HDMI_VCLK — HDMI_VDV A17 — HDMI_Y(7) D14 — HDMI_Y(6) A15 — HDMI_Y(5) B15 — HDMI_Y(4) C15 — HDMI_Y(3) B16 — HDMI_Y(2) A16 — HDMI_Y(1) B16 — HDMI_Y(0) C16

SVDV|VCOAST|GPIO_03 … SVDATA0|GPIO_G00_B0

VCLK|GPI_01 A20 I817 COL_CLKASB — 4801 — COL_CLKASA

FROM COLUMBUS B19

B12 TO HDMI — B22 FROM DIGITAL-IO (CINCH) — B16 — B20 TO EPLD — HDMI_HOTPLUG_RESET — AV3_HDMI-AUDIO_SEL — PIXEL+ RESET (RESERVED FOR CINCH ONLY) — CVI_VGA_SEL — 3831 100R PDP_GO_UP I819 — 3832 100R VS_ON — POWER_UP_OK I820 — 3833 10R HOT_PLUG I821 — B23 RESERVED FROM ANALOG-IO (CINCH) — B14 TO DIGITAL-IO (SCART)

7801-9 GM1501-LF-BD GPIO

+3V3_IO 3830 RES — NC — SD_HD_SEL

GPIO_G04_B0|DOBLU2 … GPIO_G04_B7|DOBLU9 — AD23 AD24 AE24 AF24 AF25 AF26 AE25 AE26 NC AD21 AD22 — GPIO_G05_B0|DOGRN2 … GPIO_G05_B3|DOGRN5

GPIO_G06_B0|DORED2 … GPIO_G06_B3|DORED5 — AC18 AD18 AE18 AF18 — GPIO_G07_B0|DERED2 … GPIO_G07_B7|DERED9 — AE8 AF8 AC9 AD9 AE9 AF9 AD10 AE10

GPIO_G08_B0|JTAG_CLK|DORED0 … GPIO_G08_B5|JTAG_RESET|DOBLU1 — AD6 AE6 AF6 NC AE7 AF7 AD8 AE4 AF4 AC5 AD5 AE5 AF5 AF17 AD16 AD7

I809 3834 10K — I810 3835 10K — I822 3836 10K — JTAG_CLK_SCL — JTAG_TDI_SDA — PC_HD_SEL — SC2|AV2_SIDE_SW — RGB|CVI_HDA_SEL — TV_SC_COM — TV_IRQ — NVM_WP_SCALER — SC2_OUT_SW — Y_NOTCH

+3V3_IO 3837 10K 3838 10K — I811 — F803 F804 — 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

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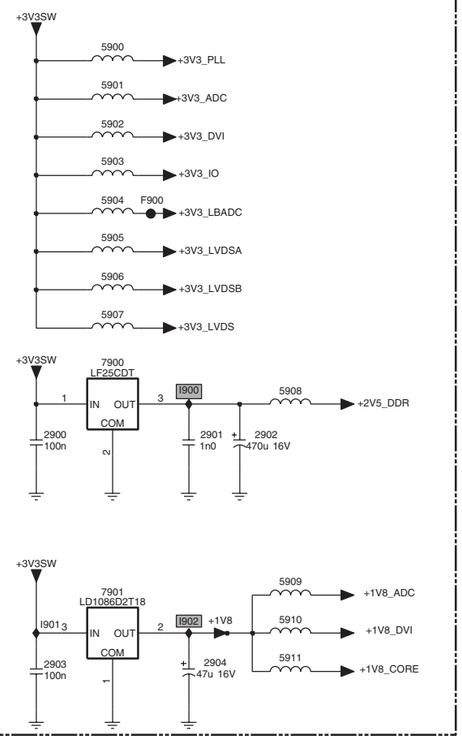
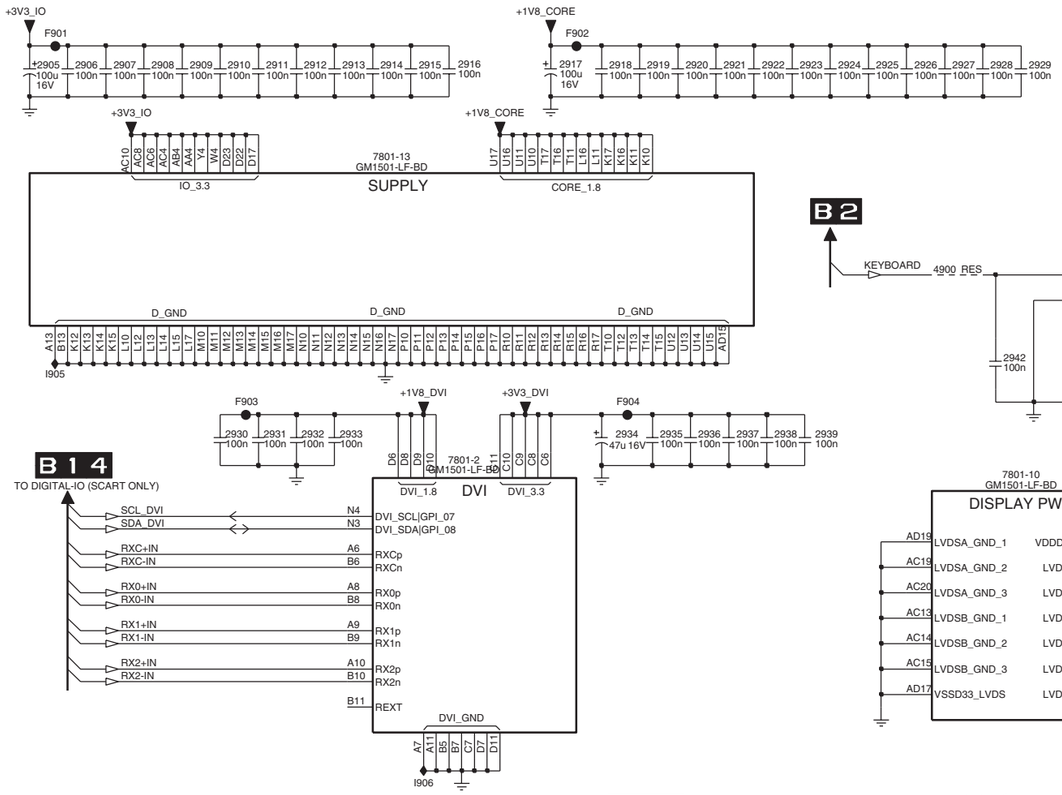
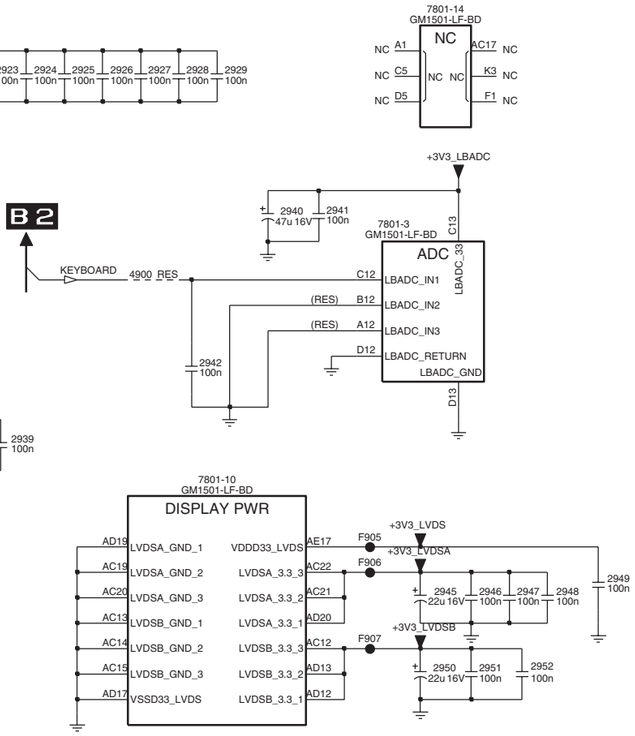
SSB: Scaler

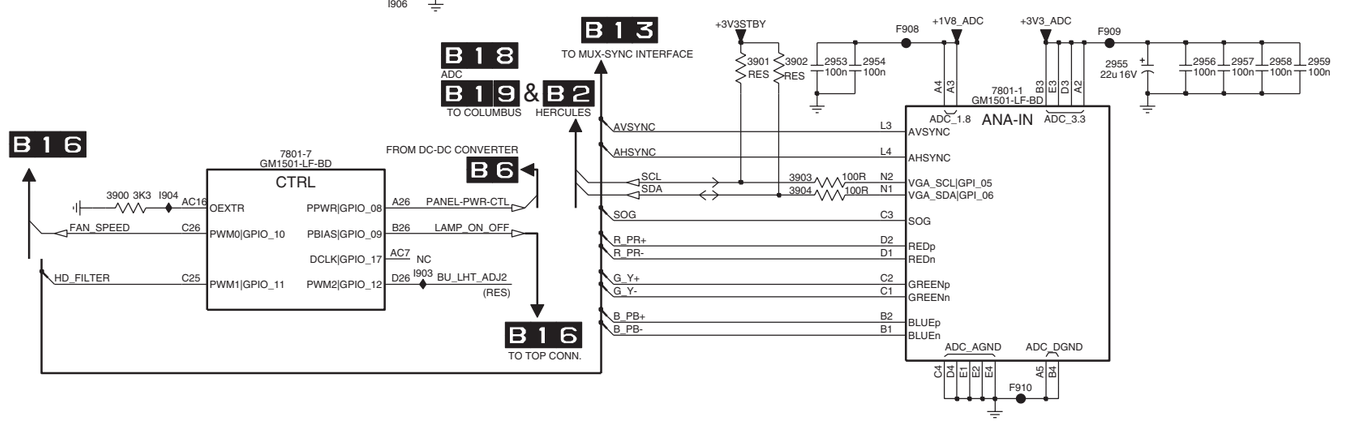
B8 SCALER

SUPPLY FOR SCALER









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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

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

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
IA05
BACKLIGHT_DIM
B20 FROM EPLD

RES +5VSWI
3A03 RES
3A05 RES
7A01 SI2301DS-T1
IA06
3A06 10K
IA00
2A03 1u0
3A04 1K0
BACKLIGHT_CTRL
B16 TO TOP CONNECTORS
4A03

FOR PDP ONLY
+3V3SW
3A07 10K
3A08 10K
2A00 100n
+3V3SW
5A00
7A00 PCA9515ADP
VCC
B21 TO EPLD
SDA_DMA_BUS1_DISP
3A00 68R
IA08
SDA1
SDA0
SDA_IO
SCL_DMA_BUS1_DISP
3A01 68R
IA09
SCL1
SCL0
SCL_IO
NC
GND
EN
4A04 (PDP)
BUF_ENABLE
2A01 100p
2A02 100p
4A00_RES
4A01_RES

FOR UFD ONLY
+3V3STBY
2A13 100n
3A13 10K
+3V3STBY
+5V
3A11 4K7
3A14 4K7
7A03 BC847BW
B2 FROM HERCULES
SC_STANDBY
3A10 10K
IA03
7A02 BC847BW
2A12 10n
6A01 BZX384-C3V9
STANDBY
4A05
4A06

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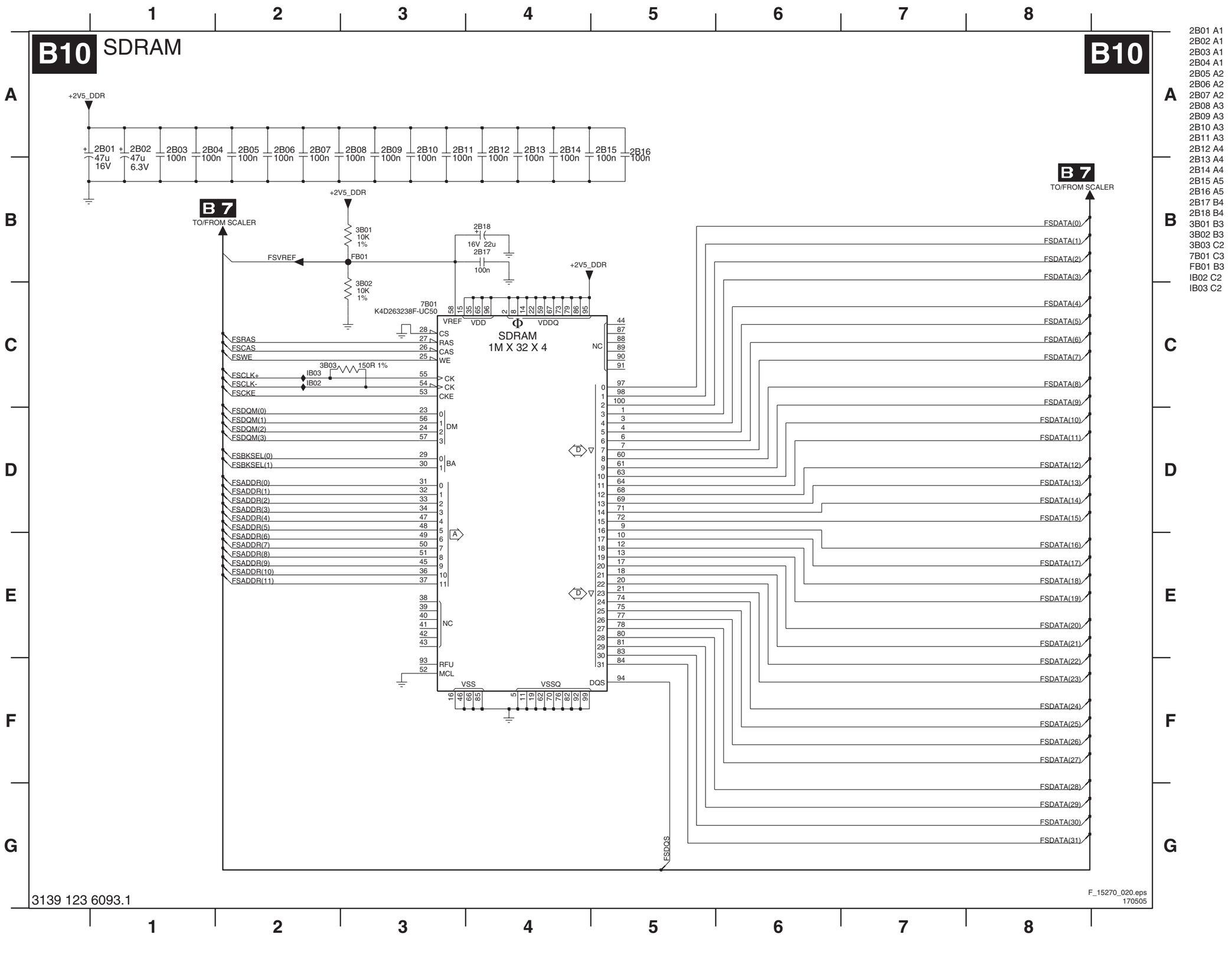
SSB: SDRAM



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
ROM
512Kx8
[FLASH]

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

A 0 / 512K-1

OCMDATA(0:7)
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

OCMADDR(0:19)

+3V3_IO
3C04-1 1
3C04-2 2
3C04-3 3
3C04-4 4
3C05
10K

3C06-1 1 8 10K
3C06-2 2 7 10K
3C06-3 3 6 10K
3C06-4 4 5 10K

3C11 RES
3C12 RES
3C13 RES
3C14 RES
3C15 RES

3C07-1 1 8 10K
3C07-2 2 7 10K
3C07-3 3 6 10K
3C07-4 4 5 10K

3C08-2 2 7 10K
3C08-1 1 8 10K
3C08-3 3 6 10K
3C08-4 4 5 10K

3C09-1 1 8 10K
3C09-2 2 7 10K
3C09-3 3 6 10K
3C09-4 4 5 10K

3C10-1 1 8 10K
3C10-2 2 7 10K
3C10-3 3 6 10K
3C10-4 4 5 10K

+3V3_IO
3C16-4 5
3C17 10K
3C16-3 6 10K
3C16-1 8
3C16-2 7
3C18 10K

FC09 FC10 FC08 FC07 FC06

3C19 RES
3C20 RES
3C21 RES

+3V3SW
3C00 10K
2C02 100n
3V2
7C01 M24C32-WMN6
Φ (4Kx8) EEPROM
WC SCL SDA ADR

NVM_WP_SCALER 0V FC01
SCL_IO 3V2 FC02
SDA_IO 3V2 FC03

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

B7 & B12 TO SCALER & TO HDMI
B19 TO COLUMBUS

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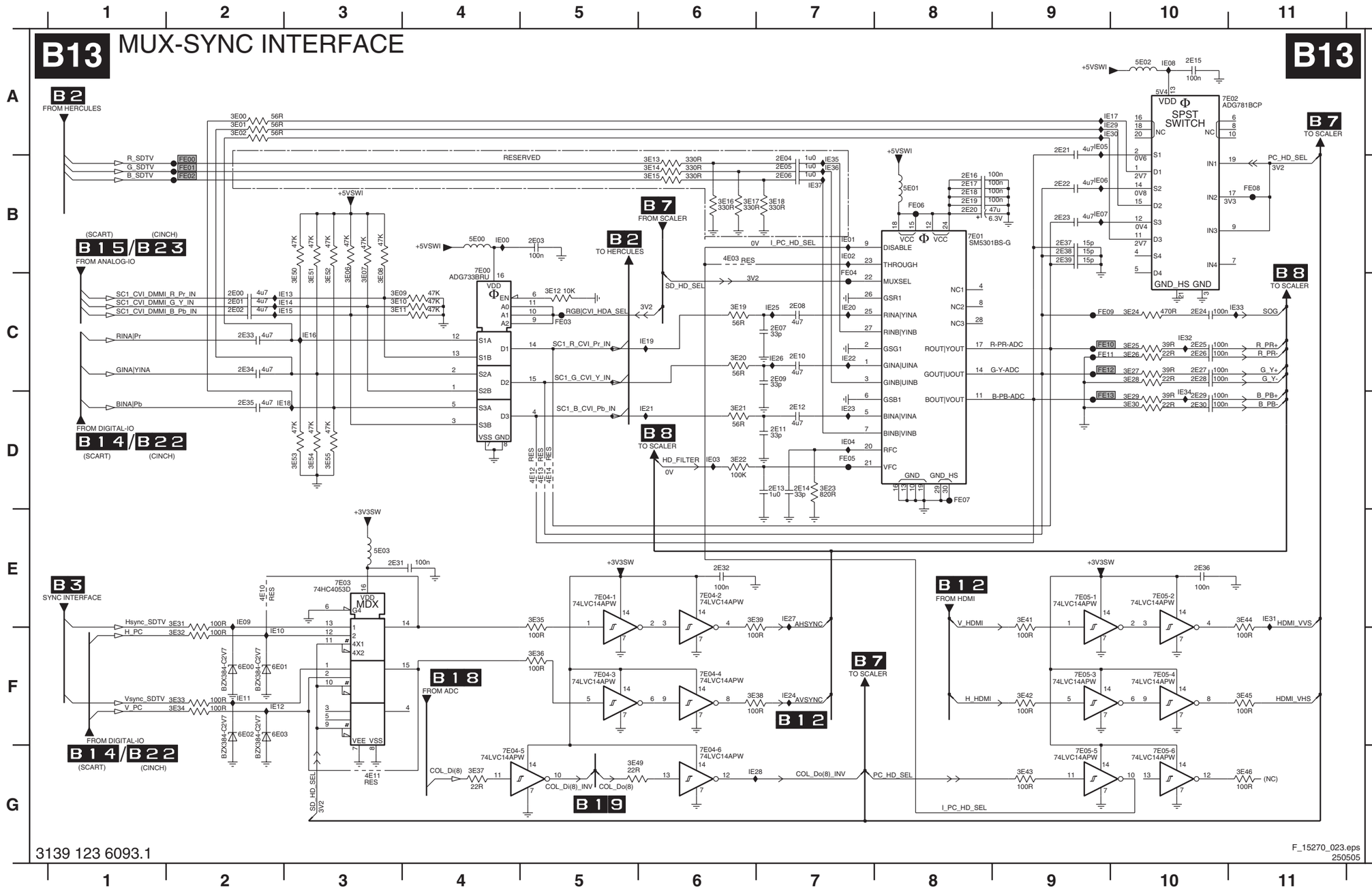
1C00 E4
2C00 A3
2C01 A3
2C02 E2
2C03 E5
3C00 E2
3C01 E5
3C02 E6
3C03 E6
3C04-1 A6
3C04-2 A6
3C04-3 A6
3C04-4 A6
3C05 A6
3C06-1 B5
3C06-2 B5
3C06-3 B5
3C06-4 B5
3C07-1 B5
3C07-2 B5
3C07-3 B5
3C07-4 B5
3C08-1 B5
3C08-2 B5
3C08-3 C5
3C08-4 C5
3C09-1 C5
3C09-2 C5
3C09-3 C5
3C09-4 C5
3C10-1 C5
3C10-2 C5
3C10-3 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: MUX-Sync Interface

B13 MUX-SYNC INTERFACE



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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

DVI INPUT

ROW_A 1F00-1

ROW_B 1F00-2

ROW_C 1F00-3

YKF45-7005

DVI CONNECTOR

PC AUDIO IN

1F01

YKB21-5101A

7F03 M24C02-WMN6

(256x8) EEPROM

ADR

WC SCL SDA

S001 S002

5F00 5F01 5F02 5F03

2F00 2F02 2F04 2F05 2F07 2F08 2F09 2F10 2F11 2F12 2F13 2F14

3F00 3F09 3F10 3F11 3F16 3F17 3F18 3F19 3F20 3F21 3F22 3F23 3F24 3F25 3F26 3F27 3F28 3F29

6F00 6F01

IF11 RINA|Pr

IF17 GINA|YINA

H_PC

IF20 BINA|Pb

V_PC

SCL_DVI

SDA_DVI

RX2-IN RX2+IN

RX1-IN RX1+IN

RX0-IN RX0+IN

RXC+IN RXC-IN

HOT_PLUG

DDC_5V

DVI_5V

+5VSWI

BAS316

IF05 IF04

IF23 IF22

AudioIN2L AudioIN2R

IF00 IF01 IF02 IF03 IF06 IF07 IF08 IF09 IF12 IF13 IF14 IF15 IF21

FF00 FF01 FF02 FF03 FF04 FF05 FF06 FF07 FF08 FF10 FF11 FF12 FF13

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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: SCART Analogue I/O

B15 SCART ANALOGUE IO

SCART 1

SCART 2

RESERVED FOR DMMI

RESERVED FOR DMMI

DMMI CONNECTOR

3139 123 6093.1

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1G01-1 A1 3G95 I9 IG55 C11
1G01-2 E1 3G96 I9 IG56 D10
1G02-1 F1 3G99 I8 IG57 B13
1G02-2 J1 3S00 J9 IG58 B13
1G03 G15 3S01 G9 IG59 D14
2G01 A3 3S03 J8 IG60 E11
2G02 A2 4G00 A3 IG61 F11
2G03 B3 4G01 B3 IG62 F11
2G04 B3 4G05 G3 IG63 F11
2G05 A3 4G06 G3 IG64 E12
2G06 B3 4G09 B11 IG67 F12
2G07 A4 4G10 B11 IG69 F12
2G08 A4 4G11 D12 IG73 I8
2G09 B3 4G12 D12 IG75 I9
2G10 B3 4G13 D12 IG76 J8
2G11 B4 4G14 E9 IG78 J9
2G12 B4 4G15 F9 IG79 K9
2G16 E4 4G16 G11 IG80 I10
2G17 E5 4G17 G11 S011 A2
2G18 G4 4G18 J5 S012 B2
2G19 G4 4G19 H9 S013 B2
2G20 G5 4G20 K9 S014 B2
2G21 G4 4G21 I9 S015 C2
2G22 H4 4G22 K10 S016 C2
2G23 H4 4G26 E4 S017 C3
2G24 G5 5G00 E4 S018 C2
2G25 H4 5G01 D10 S019 D2
2G26 I5 5G02 I11 S020 E2
2G28 J4 6G00 F3 S021 E2
2G29 B11 6G01 K3 S022 E2
2G30 B11 6G02 B13 S023 F2
2G31 C11 6G03 B2 S024 G3
2G32 C11 6G04 C2 S025 G3
2G33 C13 6G05 A2 S026 H3
2G34 D11 6G06 B2 S027 H2
2G35 D11 6G07 F2 S028 G2
2G36 F9 6G08 F2 S029 H2
2G37 F9 6G09 G2 S030 H2
2G38 F12 6G10 G2 S031 H2
2G39 E13 7G03 E4 S032 I2
2G40 E13 7G05 J4 S033 I2
2G41 F13 7G07 B11 S034 I2
2G43 I14 7G08 B13 S035 J2
2G45 I14 7G09 E11 S036 K2
2G46 I14 7G10 J10
2G47 J11 FG00 A2
2G48 G3 FG01 A2
2G49 G3 FG02 B1
2G50 H3 FG03 B2
2G51 H3 FG04 B2
2G52 F2 FG05 C2
2G53 K2 FG06 C2
2G55 I8 FG07 C2
2G56 J8 FG08 D2
2G63 B10 FG09 E2
2G64 C10 FG10 D2
2G65 K9 FG11 E2
2G66 I9 FG12 F2
3G00 A3 FG13 F6
3G01 A3 FG14 G2
3G02 A4 FG15 G2
3G03 B4 FG16 G1
3G04 B3 FG17 G2
3G05 B3 FG18 H2
3G06 B4 FG19 H1
3G07 B4 FG20 I2
3G08 J5 FG21 H2
3G09 I4 FG22 J2
3G12 C3 FG23 J2
3G13 C3 FG24 C1
3G14 D3 FG25 C1
3G15 C3 FG26 G2
3G16 C3 FG27 H2
3G17 D3 FG28 H2
3G26 D2 FG30 I2
3G27 D3 FG32 G14
3G28 E3 FG33 G14
3G29 E3 FG34 G14
3G30 E3 FG35 G14
3G31 F3 FG36 G14
3G32 E4 FG37 H14
3G33 F3 FG38 H14
3G34 E5 FG39 H14
3G37 G3 FG40 H15
3G38 G3 FG41 H14
3G39 G4 FG42 H14
3G40 G4 FG43 H14
3G41 G3 FG44 H14
3G42 H3 FG45 H14
3G43 H4 FG47 I14
3G44 H4 FG48 I14
3G45 I3 FG49 I14
3G46 I3 FG50 I14
3G47 I6 FG51 I14
3G48 I6 GS53 I14
3G51 H3 FG54 I14
3G52 H4 FG56 I14
3G53 J3 IG00 A4
3G54 J4 IG01 A4
3G55 I5 IG02 A5
3G56 J5 IG03 B5
3G57 K3 IG04 B4
3G58 J3 IG05 B4
3G59 J4 IG06 C6
3G60 K4 IG07 C6
3G63 B9 IG08 D6
3G64 C9 IG09 D6
3G65 B11 IG10 D6
3G66 C9 IG11 E3
3G67 C10 IG12 E4
3G68 C10 IG13 E6
3G69 B12 IG14 G4
3G70 C12 IG15 G4
3G71 C14 IG16 G5
3G72 D10 IG17 G5
3G73 D10 IG18 G4
3G74 D10 IG19 H4
3G75 E9 IG20 G5
3G76 F9 IG21 H5
3G77 F10 IG23 H5
3G78 F10 IG24 J4
3G79 D12 IG25 J5
3G80 D13 IG26 J5
3G81 D13 IG27 K5
3G82 D13 IG28 D10
3G83 E12 IG29 E11
3G84 F12 IG30 F12
3G85 F13 IG40 I4
3G86 F13 IG42 I5
3G87 F13 IG43 J4
3G88 H12 IG46 I11
3G89 F12 IG47 K9
3G90 H11 IG49 B8
3G91 H12 IG50 B11
3G92 J9 IG52 C11
3G93 K9 IG53 C11
3G94 I9 IG54 C11

SSB: Top Connectors

B16 TOP CONNECTORS

B16

FOR UFD ONLY

UFD CONTROL

(1M03) 1J00

IJ01 POR (NC)
IJ02 LAMP_ON_OFF_1
IJ03
IJ04
TEMP_SENSOR (NC)
IJ05 STANDBY_1
IJ06 NC
IJ07 POWER_UP_OK_1

5J05 RES
FAN_SPEED
PROTECT_AUD
3J06 RES
POWER_UP_OK
IJ12

4J02 RES
2J16 RES
2J33 RES
2J20 RES
2J34 RES

FROM SCALER INTERFACE B6
FROM SCALER B8
FROM SCALER B7

PROTECT_AUD

UFD SUPPLY

(1M46) 1J01

FJ00
FJ01 (NC)
FJ02
5V(NC)
FJ03
FJ04
+33V_TUN(NC)
FJ05 NC
4J01

1J07 +12V_UFD
3A T
1J08 +5V_UFD
5J04
+5V
2J31 1n0

TO DC-DC CONVERTER B6

TO/FROM PSU (SUPPLY FOR LCD)

1J02 B12P-PH-K-S(LF)

VP
GND_AUDIO
FJ06
3V2 +3V3STBY
FJ07
IJ08
IJ09
IJ10
IJ11
5J03 POWER_DOWN
11V6 +12VUNREG
3J05 68R STANDBY 3V1
3J03 68R BACKLIGHT_CTRL
3J04 68R LAMP_ON_OFF 3V2
IJ13

FROM SCALER INTERFACE B9
FROM SCALER B8

2J30 1n0
2J02 1n0
2J35 1n0
2J18 100p
2J19 100p
2J17 100p
2J22 100p
2J23 100p
2J21 100p

TO/FROM 1003 OF CLASS-D AUDIO AMP (+18V / +24V) C

1J03 B3B-PH-K-S(LF)

FJ08 VP
FJ09
GND_AUDIO
2J03 1n0
GND_AUDIO

FROM AUDIO B5

AUDIO-L
AUDIO-R
5J01
5J02
FJ10
FJ11
FJ12
AUDIO-SW (NC)
3V3 SOUND_ENABLE_1
3V3 POR_AUDIO
FJ13
FJ14

(1M52) 1J04 B9B-PH-K-S(LF)

2J26 100p
2J27 100p
2J28 100p
2J29 100p
2J36 1n0

TO/FROM 1002 OF CLASS-D AUDIO AMPLIFIER C

FROM EPLD B20

B_LT_PWM
G_LT_PWM
R_LT_PWM
B_RT_PWM
G_RT_PWM
R_RT_PWM
FJ15
FJ16
FJ17
FJ18
FJ19
FJ20

1J05 B7B-PH-K-S(LF)

AMBIENT LIGHT (TOP)

2J04 100p
2J05 100p
2J06 100p
2J07 100p
2J08 100p
2J09 100p

B_LB_PWM
G_LB_PWM
R_LB_PWM
B_RB_PWM
G_RB_PWM
R_RB_PWM
FJ21
FJ22
FJ23
FJ24
FJ25
FJ26

1J06 B7B-PH-K-S(LF)

AMBIENT LIGHT (BOTTOM)

2J10 100p
2J11 100p
2J12 100p
2J13 100p
2J14 100p
2J15 100p

RESERVED

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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

B17 SIDE CONNECTORS

B17

FOR DISC/ ARCH CABINET
RESERVED
1K03
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
+3V3STBY_1
4K06 +3V3STBY_1
4K07 RES
+5VSW_1
PC-TV-LED_1
LED_SEL_1
LIGHT_SENSOR_1
IR_1
KEYBOARD
ITV_IR_SW_RESET

B2
B3 B6
+3V3STBY
LED_SEL
PC-TV-LED
IR
LIGHT_SENSOR

4K01 RES
4K03 RES
3K11 68R
5K00 1u0
5K02 1u0
3K12 68R
3K13 68R
IK16
4K04 IK00 PC-TV-LED_1
4K05 IK01 LED_SEL_1
IK02 IR_1
IK03 LIGHT_SENSOR_1
2K01 1n0
2K00 1n0
2K21 100p
2K22 100p
2K23 100p
2K24 100p
2K25 100p
2K26 100p
2K27 100p
2K28 100p

J
TO/FROM 1540 OF IR/ LED
1K00 (1M21)
6 5 4 3 2 1
B6B-PH-K
FK11

B15/B23
3K00 100R
2K02 10p
2K03 10p
FRONT_Y_CVBS_IN
3K01 100R
2K04 10p
2K05 10p
FRONT_C_IN
3K02 10K
IK17
2K08 2u2
2K06 100p
2K07 100p
3K03 15K
FRONT_L_IN
5K01 1u0
+5VSW
2K19 1n0
2K20 1n0
3K05 10K
IK18
2K12 2u2
2K10 100p
2K11 100p
3K06 15K
FRONT_R_IN
* 3K07 39R
* 2K13 100p
* 2K14 100p
HP_LOUT
3K08 68R
2K15 100p
HP_DET_R_DC
* 3K09 39R
* 2K16 100p
* 2K17 100p
HP_ROUT

B2
B5
KEYBOARD

D
TO/FROM 1304 OF SIDE I/O
1K01 (1M06)
RES 1K04
1 2 3 4 5 6 7 8 9 10 11 12
FK00 FRONT_Y_CVBS_IN_1
FK01 FRONT_C_IN_1
FK02 FRONT_L_IN_1
FK03 +5VSW_1 3V3
FK04 FRONT_R_IN_1
FK10
FK05 HP_LOUT_1
FK06 HP_DET_R_DC_1 3V3
FK07 HP_ROUT_1
4K02 RES

E
TOP/SIDE KEYBOARD
1K02 (1M01)
FK08
FK09
1 2 3
B3B-PH-K-S(LF)
2K18 100p

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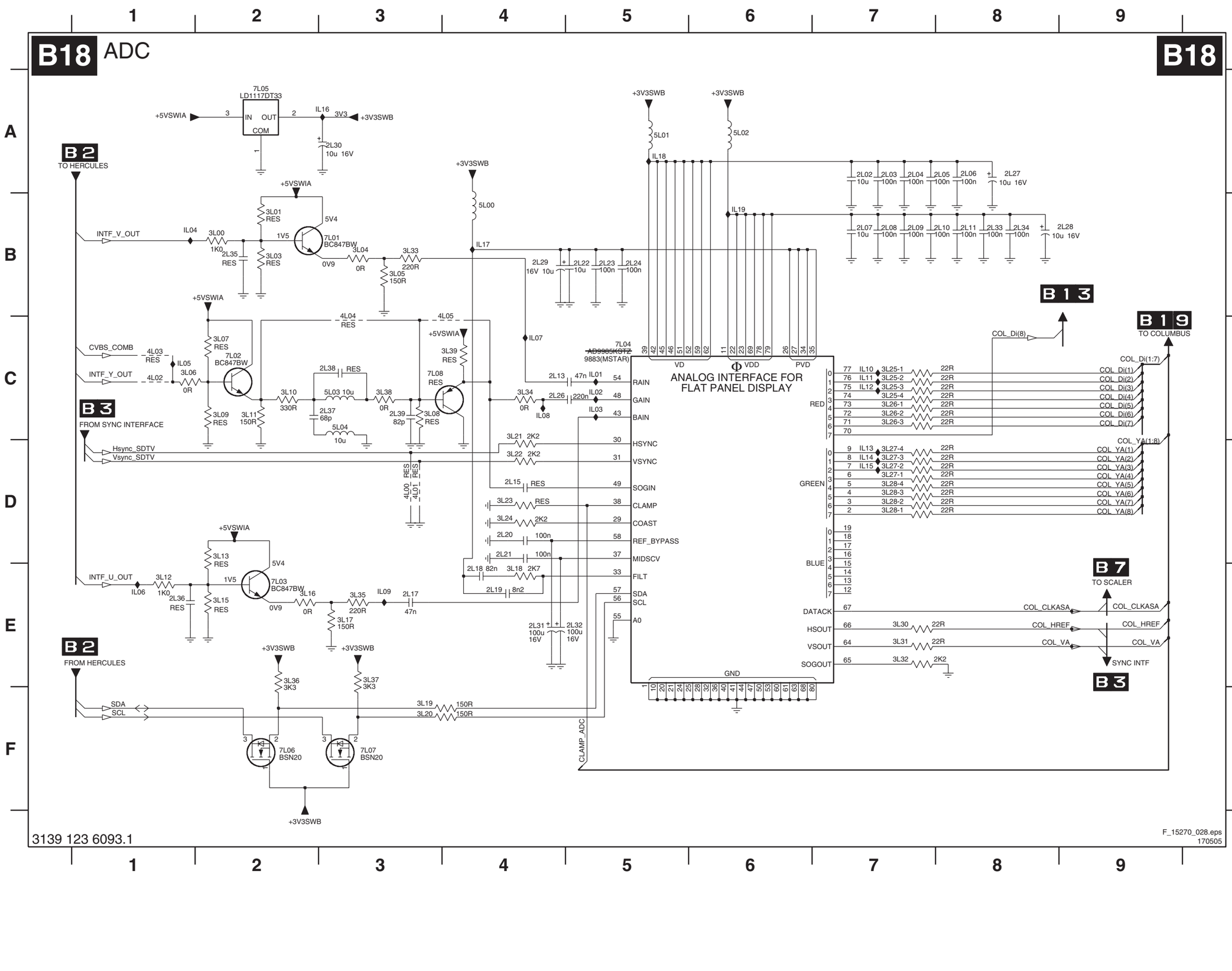
1K00 A8
1K01 D1
1K02 E8
1K03 A1
1K04 D1
2K00 B7
2K01 B6
2K02 C3
2K03 C3
2K04 D3
2K05 D3
2K06 D3
2K07 D3
2K08 D4
2K10 E3
2K11 E3
2K12 E4
2K13 F3
2K14 E3
2K15 F3
2K16 F3
2K17 F3
2K18 E8
2K19 E3
2K20 E3
2K21 B6
2K22 B6
2K23 B6
2K24 B6
2K25 B7
2K26 B7
2K27 B7
2K28 B7
3K00 C3
3K01 C3
3K02 D3
3K03 D3
3K05 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

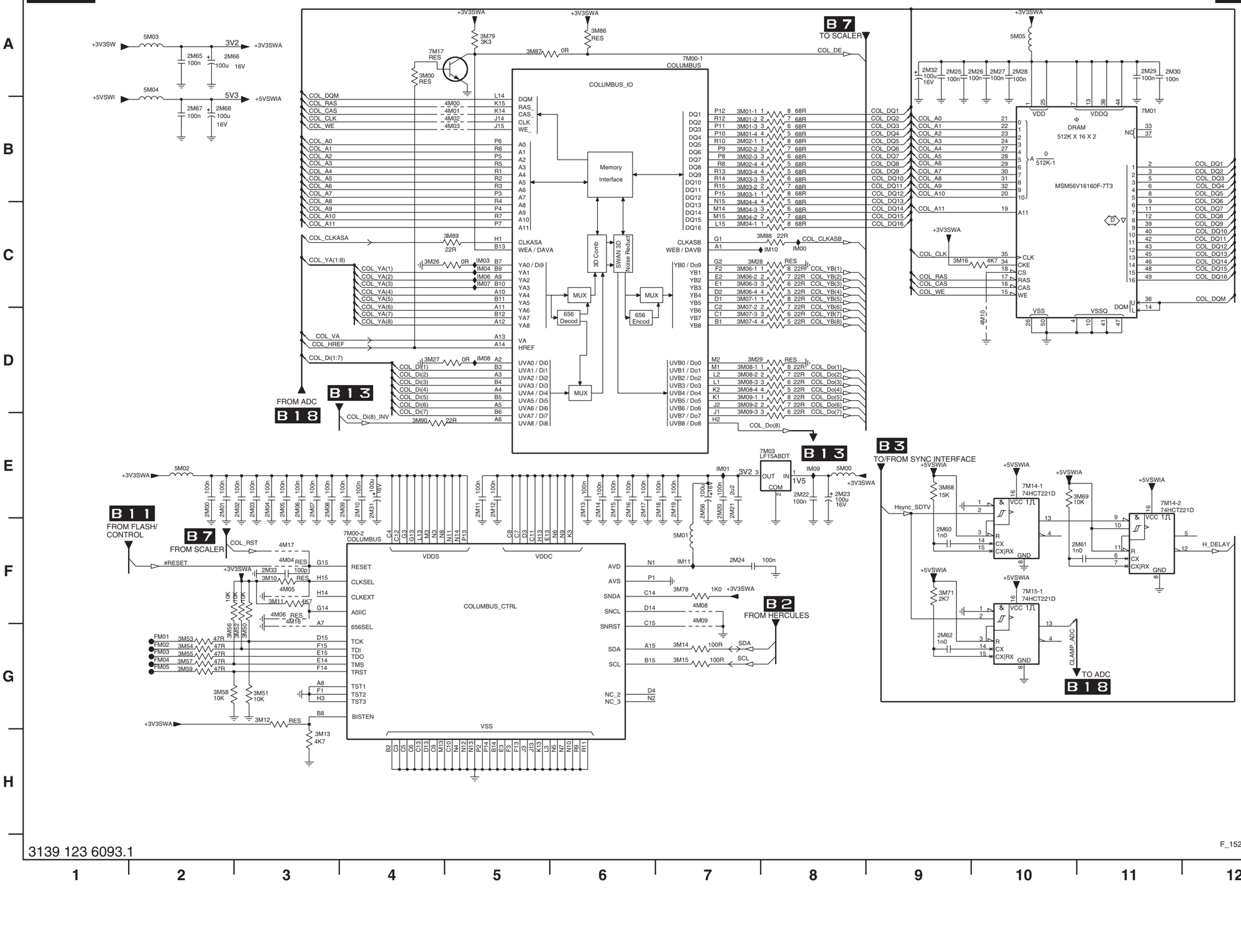
SSB: ADC



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



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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	
3M01-4 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	

SSB: EPLD

B20 EPLD

B20

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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

+3V3SW

7P02 THC63LVDM83R

B20 (H=NORMAL)

LVDS_PWR_DWN

CLK_OUT

TA TB TC TD

TCLK

LVDSCLKp LVDSCLKn

LVDSAp LVDSAn

LVDSBp LVDSBn

LVDSCp LVDSCn

LVDSDp LVDSDn

DLW21S

LVDSCLK+ LVDSCLK-

LVDSA+ LVDSA-

LVDSB+ LVDSB-

LVDSC+ LVDSC-

LVDSD+ LVDSD-

B20 FROM EPLD

7N02-6 EP1C12F256C8

POWER

+3V3-IO

+1V5-INT

+1V5-PLL

VCCIO BANK1 BANK2 BANK3 BANK4

VCCINT

GND GNDA GNDG PLL1 PLL2 VCCA

FOR MFD ONLY

1P06

LVDS_VCC

LVDS_OPT

NC

TO LCD PANEL (TIMING CONTROL)

0-1453230-3

B9 FROM SCALER INTERFACE

FOR UFD ONLY

(1G50) 1P07

SDA_DMA_BUS1_DISP

SCL_DMA_BUS1_DISP

FP15 FP16 FP17

LVDS_OPT

CTRL_DISP2

CTRL_DISP1

(NC) VDISP_2

(NC) VDISP2

TO PLASMA PANEL (TIMING CONTROL)

FI-WE31P-HFE-E1500

LVDS_VCC

FROM DC-DC CONVERTER

B6 FOR LCD ONLY

LVDS OUT

7N02-4 EP1C12F256C8

BANK 3

PARITY_OUT HS_OUT VS_OUT DE_OUT CLK_OUT

7P01 LF15ABDT

+3V3SW +1V5

+3V3-IO +1V5-PLL +1V5-INT

1P01 E8 1P02 E8 1P03 F8 1P04 F8 1P05 G8 1P06 A11 1P07 D11 2P01 B3 2P02 B3 2P03 B3 2P04 B3 2P05 B3 2P06 B3 2P07 B4 2P08 B4 2P09 B4 2P10 B4 2P11 B4 2P12 B4 2P13 B4 2P14 B5 2P15 B1 2P16 B1 2P17 B2 2P18 B3 2P19 B3 2P20 B3 2P21 B3 2P22 C3 2P23 C3 2P24 C3 2P25 C3 2P26 C3 2P27 C3 2P28 C4 2P29 C4 2P30 C4 2P31 C5 2P32 D5 2P33 D5 2P34 D6 2P35 D7 2P36 D8 2P37 E8 2P38 E8 2P39 E8 2P40 F8 2P41 F8 2P42 F8 2P43 F8 2P44 G8 2P45 G8 3P01 D5 3P03 E5 3P04 D9 3P05 D9 4P01 F10 4P02 F10 4P03 F10 4P04 F10 4P05 F10 4P06 F10 4P07 F10 4P08 F10 4P09 D9 4P10 E9 5P01 A3 5P02 B3 5P03 C3 5P04 D6 5P05 D6 5P06 D7 7N02-3 A6 7N02-4 E2 7N02-6 A8 7P01 B2 7P02 D7 FP01 A1 FP02 A4 FP03 B2 FP04 B3 FP05 C4 FP06 D4 FP07 E4 FP08 E4 FP09 E4 FP10 F4 FP11 F4 FP12 F4 FP13 F4 FP14 G4 FP15 D11 FP16 D11 FP17 E11

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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)	NAFT/ALT & 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)

1102 C6 1103 B6 1105 B7 1201 B6 1202 A6 1440 B5 1441 A5 1801 C3 1F00 D1 1F01 D2 1G01 D5 1G02 D3 1G03 D4 1J00 A5 1J01 A3 1J02 A4 1J03 A6 1J04 A6 1J05 A1 1J06 A1 1J07 A4 1J08 A4 1K00 A7 1K01 B7 1K02 C7 1K03 C7 1P01 A1 1P02 A1 1P03 A1 1P04 A1 1P05 A1 1P06 A1 1P07 A1 2203 A5 2205 B6 2206 B6 2207 B6 2208 A6 2209 A6 2210 B5 2211 B6 2214 B6 2216 B6 2218 B5 2221 B6 2223 A5 2224 A5 2226 B6 2228 B6 2229 B6 2230 B6 2231 A6 2232 B5 2233 B5 2234 A6 2235 A6 2236 A5 2237 A5 2238 A6 2240 A5 2241 A5 2242 B6 2243 B6 2244 B5 2245 B5 2246 B5 2247 B6 2248 B6 2249 B6 2250 A5 2251 B5 2255 B6 2256 B6 2257 B6 2258 A6 2259 B6 2260 A6 2262 B6 2263 B6 2264 B6 2265 B6 2266 B6 2267 B6 2268 B6 2269 A6 2270 A6 2271 A5 2272 A5 2274 B6 2275 A6 2276 A6 2277 B5 2278 B5 2279 B5 2285 A6 2286 B6 2287 B6 2288 B5 2290 C5 2291 B5 2447 A5 2448 A5 2501 A5 2502 A6 2503 A5 2504 A6 2505 A6 2506 A6 2507 A6 2508 A5 2509 A5 2611 A7 2615 A7 2618 A6 2704 A4 2706 A4 2709 A3 2713 A4 2716 A3 2731 A4 2736 A5 2737 A4 2738 A5 2739 A5 2753 A3 2754 A3 2755 A3 2756 A3 2757 A3 2758 A3 2800 C2 2815 C3 2901 B1 2902 B1 2903 C4 2904 C3 2917 C2 2934 C3 2940 C3 2A00 B3 2A01 B2 2A02 B2 2A12 B4 2A13 B3 2B01 B1 2B02 B1 2B05 B1 2B17 B1 2B18 B1 2D03 D1 2D04 C1 2D05 C1 2D06 D1 2D07 C1 2D08 D3 2D09 C3 2D10 C3 2D11 C1 2D12 C1 2D13 C3 2D14 C3 2D15 C1 2D16 C3 2D17 C1 2D18 C3 2D19 C3 2D20 C3 2D21 C1 2D22 C1 2D23 D1 2D24 C1 2D25 C1 2D26 C1 2D27 C1 2D28 C3 2D29 C3 2D30 C3 2D31 C1 2D32 C1 2D33 C3 2D34 D2 2D35 D3 2D36 C3 2D37 C3 2D38 C1 2D39 C3 2D40 C3 2D41 C1 2D42 C3 2E00 D3 2E01 D4 2E02 D4 2E03 D3 2E04 D3 2E05 D3 2E06 C3 2E07 D3 2E08 D3 2E09 C3 2E10 D3 2E11 C3 2E12 C3 2E13 C3 2E14 C3 2E15 C4 2E16 C3 2E17 C3 2E18 C3 2E19 C3 2E20 C3 2E21 C3 2E22 C4 2E23 C4 2E24 D2 2E25 D2 2E26 D2 2E27 D2 2E28 B4 2E29 B4 2E30 B4 2E31 B4 2E32 B4 2E33 B4 2E34 D4 2E35 C4 2E36 C4 2E37 C4 2E38 C4 2E39 C4 2E40 C4 2E41 C4 2E42 C4 2E43 C4 2E44 C4 2E45 C4 2E46 C4 2E47 D3 2E48 C4 2E49 C4 2E50 C4 2E51 C4 2E52 C4 2E53 C4 2E54 C4 2E55 C4 2E56 C4 2E57 C4 2E58 C4 2E59 C4 2E60 C4 2E61 C4 2E62 C4 2E63 C4 2E64 C4 2E65 C4 2E66 C4 2E67 C4 2E68 C4 2E69 C4 2E70 C4 2E71 C4 2E72 C4 2E73 C4 2E74 C4 2E75 C4 2E76 C4 2E77 C4 2E78 C4 2E79 C4 2E80 C4 2E81 C4 2E82 C4 2E83 C4 2E84 C4 2E85 C4 2E86 C4 2E87 C4 2E88 C4 2E89 C4 2E90 C4 2E91 C4 2E92 C4 2E93 C4 2E94 C4 2E95 C4 2E96 C4 2E97 C4 2E98 C4 2E99 C4 2F00 C4 2F01 C4 2F02 D1 2F03 D1 2F04 D1 2F05 D2 2F06 D1 2F07 D1 2F08 D1 2F09 D1 2F10 D1 2F11 D1 2F12 D1 2F13 D2 2F14 D2 2F15 D2 2F16 D2 2G07 D4 2G11 D4 2G20 D2 2G24 D2 2G29 D4 2G30 D4 2G32 D3 2G33 D3 2G34 D5 2G35 D5 2G36 D5 2G37 D5 2G38 D5 2G39 D5 2G40 D5 2G41 D5 2G43 D5 2G47 D3 2G55 D2 2G56 D2 2G63 D4 2G64 D3 2G65 D3 2G66 D3 2J02 A4 2J03 A6 2J04 A1 2J05 A1 2J08 A1 2J09 A1 2J11 A3 2J12 A3 2J13 A3 2J14 A3 2J15 A5 2J16 A5 2J17 A5 2J18 A5 2J19 A5 2J20 A5 2J21 A5 2J22 A5 2J23 A5 2J25 A6 2J26 A6 2J27 A6 2J28 A6 2J29 A6 2J30 A4 2J31 A3 2J33 A5 2J34 A5 2J35 A5 2J36 A6 2L02 B5 2L03 B5 2L04 B5 2L05 B5 2L06 B5 2L20 B5 2L21 B4 2L22 B5 2L27 B5 2L28 B4 2L30 B5 2L31 B5 2L32 B5 2M00 C4 2M01 C4 2M02 C4 2M03 C4 2M04 C4 2M05 C4 2M06 C4 2M07 C4 2M08 C4 2M09 C4 2M10 C4 2M11 C4 2M12 C4 2M13 C4 2M14 C4 2M15 C4 2M16 C4 2M17 C4 2M18 C4 2M19 C4 2M20 B4 2M21 B4 2M22 B4 2M23 B4 2M24 B4 2M25 B4 2M26 B4 2M27 C4 2M28 C4 2M29 C4 2M30 C4 2M31 C4 2M32 C4 2M33 C4 2M34 C4 2M35 C4 2M36 C4 2M37 C4 2M38 C4 2M39 C4 2M40 C4 2M41 C4 2M42 C4 2M43 C4 2M44 C4 2M45 C4 2M46 C4 2M47 C4 2M48 C4 2M49 C4 2M50 C4 2M51 C4 2M52 C4 2M53 C4 2M54 C4 2M55 C4 2M56 C4 2M57 C4 2M58 C4 2M59 C4 2M60 C5 2M61 C4 2M62 C5 2M63 C4 2M64 C4 2M65 C4 2M66 B4 2M67 C4 2M68 B5 2P15 A2 2P36 A1 2P37 A1 2P38 A1 2P39 A1 2P40 A1 2P41 A1 2P42 A1 2P43 A1 2P44 A1 2P45 A1 3126 B6 3127 B6 3200 B2 3201 B2 3202 B2 3203 B2 3204 B2 3205 B2 3206 B2 3207 B6 3208 B6 3209 B6 3210 B6 3211 B6 3212 B6 3213 B6 3214 B6 3215 B5 3216 B5 3217 B5 3222 A5 3223 A5 3224 A5 3225 A5 3226 A5 3227 A5 3230 A6 3231 A6 3234 A6 3235 A6 3236 A6 3242 B5 3244 B5 3245 B6 3262 B6 3263 B6 3264 B6 3265 B6 3266 B6 3267 B6 3268 B5 3270 A5 3271 B5 3272 B6 3273 B6 3274 B6 3277 B5 3278 B5 3279 B5 3280 B6 3281 B6 3282 C5 3285 B6 3286 B5 3291 B5 3292 C5 3293 B5 3294 C5 3295 B6 3501 A5 3502 A5 3503 A5 3504 A5 3505 A5 3506 A5 3507 A5 3508 A5 3509 A5 3510 A5 3511 A5 3512 A5 3513 A5 3514 A5 3515 A5 3516 A5 3517 A5 3518 A5 3519 A5 3520 A5 3521 A5 3522 A5 3523 A5 3524 A5 3525 A5 3526 A5 3527 A5 3528 A5 3529 A5 3530 A5 3531 A5 3532 A5 3533 A5 3534 A5 3535 A5 3536 A5 3537 A5 3538 A5 3539 A5 3540 A5 3541 A5 3542 A5 3543 A5 3544 A5 3545 A5 3546 A5 3547 A5 3548 A5 3549 A5 3550 A5 3551 A5 3552 A5 3553 A5 3554 A5 3555 A5 3556 A5 3557 A5 3558 A5 3559 A5 3560 A5 3561 A5 3562 A5 3563 A5 3564 A5 3565 A5 3566 A5 3567 A5 3568 A5 3569 A5 3570 A5 3571 A5 3572 A5 3573 A5 3574 A5 3575 A5 3576 A5 3577 A5 3578 A5 3579 A5 3580 A5 3581 A5 3582 A5 3583 A5 3584 A5 3585 A5 3586 A5 3587 A5 3588 A5 3589 A5 3590 A5 3591 A5 3592 A5 3593 A5 3594 A5 3595 A5 3596 A5 3597 A5 3598 A5 3599 A5 3600 A5 3601 A5 3602 A5 3603 A5 3604 A5 3605 A5 3606 A5 3607 A5 3608 A5 3609 A5 3610 A5 3611 A5 3612 A5 3613 A5 3614 A5 3615 A5 3616 A5 3617 A5 3618 A5 3619 A5 3620 A5 3621 A5 3622 A5 3623 A5 3624 A5 3625 A5 3626 A5 3627 A5 3628 A5 3629 A5 3630 A5 3631 A5 3632 A5 3633 A5 3634 A5 3635 A5 3636 A5 3637 A5 3638 A5 3639 A5 3640 A5 3641 A5 3642 A5 3643 A5 3644 A5 3645 A5 3646 A5 3647 A5 3648 A5 3649 A5 3650 A5 3651 A5 3652 A5 3653 A5 3654 A5 3655 A5 3656 A5 3657 A5 3658 A5 3659 A5 3660 A5 3661 A5 3662 A5 3663 A5 3664 A5 3665 A5 3666 A5 3667 A5 3668 A5 3669 A5 3670 A5 3671 A5 3672 A5 3673 A5 3674 A5 3675 A5 3676 A5 3677 A5 3678 A5 3679 A5 3680 A5 3681 A5 3682 A5 3683 A5 3684 A5 3685 A5 3686 A5 3687 A5 3688 A5 3689 A5 3690 A5 3691 A5 3692 A5 3693 A5 3694 A5 3695 A5 3696 A5 3697 A5 3698 A5 3699 A5 3700 A5 3701 A5 3702 A5 3703 A5 3704 A5 3705 A5 3706 A5 3707 A5 3708 A5 3709 A5 3710 A5 3711 A5 3712 A5 3713 A5 3714 A5 3715 A5 3716 A5 3717 A5 3718 A5 3719 A5 3720 A5 3721 A5 3722 A5 3723 A5 3724 A5 3725 A5 3726 A5 3727 A5 3728 A5 3729 A5 3730 A5 3731 A5 3732 A5 3733 A5 3734 A5 3735 A5 3736 A5 3737 A5 3738 A5 3739 A5 3740 A5 3741 A5 3742 A5 3743 A5 3744 A5 3745 A5 3746 A5 3747 A5 3748 A5 3749 A5 3750 A5 3751 A5 3752 A5 3753 A5 3754 A5 3755 A5 3756 A5 3757 A5 3758 A5 3759 A5 3760 A5 3761 A5 3762 A5 3763 A5 3764 A5 3765 A5 3766 A5 3767 A5 3768 A5 3769 A5 3770 A5 3771 A5 3772 A5 3773 A5 3774 A5 3775 A5 3776 A5 3777 A5 3778 A5 3779 A5 3780 A5 3781 A5 3782 A5 3783 A5 3784 A5 3785 A5 3786 A5 3787 A5 3788 A5 3789 A5 3790 A5 3791 A5 3792 A5 3793 A5 3794 A5 3795 A5 3796 A5 3797 A5 3798 A5 3799 A5 3800 A5 3801 A5 3802 A5 3803 A5 3804 A5 3805 A5 3806 A5 3807 C1 3808 C1 3809 B2 3810 B2 3811 B2 3812 B2 3813 B2 3814 B2 3815 B2 3816 C2 3817 C2 3818 C2 3819 C2 3A00 B2 3A01 B2 3A02 B2 3A03 B2 3A04 B2 3A05 B2 3A06 B2 3A07 B2 3A08 B2 3A09 B2 3A10 B4 3A11 B3 3A12 B3 3A13 B3 3A14 B3 3B00 C1 3B01 B1 3B02 B1 3B03 B1 3B04 C1 3B05 C1 3B06 C1 3B07 C1 3B08 C1 3B09 C2 3B10 C2 3B11 C2 3B12 C2 3B13 C2 3B14 C2 3B15 C2 3B16 C2 3B17 C2 3B18 C2 3B19 C2 3B20 C2 3D00 C4 3D01 C4 3D02 C4 3D03 C4 3D04 C4 3D05 C1 3D06 C1 3D07 C1 3D08 C1 3D09 C2 3D10 C1 3D11 C2 3D12 C1 3D13 C2 3D14 C2 3D15 C2 3D16 C2 3D17 C2 3D18 C2 3D19 C2 3D20 C2 3E00 C4 3E01 D4 3E02 D4 3E03 D4 3E04 D4 3E05 D4 3E06 D4 3E07 D4 3E08 D3 3E09 C3 3E10 D4 3E11 D4 3E12 C4 3E13 D3 3E14 C4 3E15 C3 3E16 D3 3E17 C3 3E18 C3 3E19 D1 3E20 D1 3E21 C3 3E22 C3 3E23 C3 3E24 D2 3E25 D2 3E26 D2 3E27 D2 3E28 D1 3E29 D1 3E30 D1 3E31 D1 3E32 D1 3E33 D1 3E34 D1 3E35 D1 3E36 D1 3E37 D1 3E38 D1 3E39 D1 3E40 D1 3E41 D1 3E42 D1 3E43 D1 3E44 D1 3E45 D1 3E46 D1 3E47 D1 3E48 D1 3E49 D1 3E50 C4 3E51 C4 3E52 C4 3E53 C4 3E54 C4 3E55 C4 3E56 C4 3E57 C4 3E58 C4 3E59 C4 3E60 C4 3E61 C4 3E62 C4 3E63 C4 3E64 C4 3E65 C4 3E66 C4 3E67 C4 3E68 C4 3E69 C4 3E70 C4 3E71 C4 3E72 C4 3E73 C4 3E74 C4 3E75 C4 3E76 C4 3E77 C4 3E78 C4 3E79 C4 3E80 C4 3E81 C4 3E82 C4 3E83 C4 3E84 C4 3E85 C4 3E86 C4 3E87 C4 3E88 C4 3E89 C4 3E90 D4 3E91 D4 3E92 D3 3E93 D3 3E94 D3 3E95 D3 3E96 D2 3E99 D2 3F00 D2 3F01 D2 3F02 D2 3F03 D2 3F04 D2 3F05 D2 3F06 D2 3F07 D2 3F08 D2 3F09 D2 3F10 D2 3F11 D2 3F12 D2 3F13 D2 3F14 D2 3F15 D2 3F16 D2 3F17 D2 3F18 D2 3F19 D1 3F20 D1 3F21 D1 3F22 D1 3F23 D1 3G03 D5 3G04 D5 3G05 D5 3G06 D5 3G07 D5 3G08 D5 3G09 D5 3G10 D5 3G11 D5 3G12 D5 3G13 D5 3G14 D5 3G15 D5 3G16 D5 3G17 D5 3G18 D4 3G19 D4 3G20 D3 3G21 D3 3G22 D3 3J01 A4 3J02 A5 3J03 A5 3J04 A5 3J05 A5 3J06 A5 3L07 B5 3L09 B5 3M12 C4 3M13 C4 3M16 C4 3M26 C4 3M28 C5 3M68 C5 3M69 C5 3M71 C5 3M88 C4 3M89 C5 3M90 C4 3N21 B2 3N22 B2 3N23 B2 3N24 B2 3N25 B2 3N36 A2 3N37 A2 3N38 A2 3N39 A2 3N40 A2 3N41 A2 3P04 A1 3P05 A1 3S00 D2 3S03 D2 4107 B6 4108 B6 4201 B5 4202 B5 4203 B5 4205 C5 4206 C5 4213 B5 4214 B5 4215 B5 4507 A6 4508 A6 4509 A6 4510 A6 4511 A6 4512 A6 4513 A6 4514 A6 4616 A7 4617 A7 4620 A7 4621 A7 4900 B3 4A00 B3 4A01 B3 4A02 B3 4A03 B3 4A04 B4 4A05 B4 4A06 B3 4A07 B3 4A08 B3 4A09 B3 4A10 B4 4A11 B4 4A12 B4 4A13 B4 4A14 B4 4A15 B4 4A16 B4 4A17 B4 4A18 B4 4A19 B4 4A20 B4 4A21 B4 4A22 B4 4A23 B4 4A24 B4 4A25 B4 4A26 B4 4A27 B4 4A28 B4 4A29 B4 4A30 B4 4A31 B4 4A32 B4 4A33 B4 4A34 B4 4A35 B4 4A36 B4 4A37 B4 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4B63 B4 4B64 B4 4B65 B4 4B66 B4 4B67 B4 4B68 B4 4B69 B4 4B70 B4 4B71 B4 4B72 B4 4B73 B4 4B74 B4 4B75 B4 4B76 B4 4B77 B4 4B78 B4 4B79 B4 4B80 B4 4B81 B4 4B82 B4 4B83 B4 4B84 B4 4B85 B4 4B86 B4 4B87 B4 4B88 B4 4B89 B4 4B90 B4 4B91 B4 4B92 B4 4B93 B4 4B94 B4 4B95 B4 4B96 B4 4B97 B4 4B98 B4 4B99 B4 4C00 B4 4C01 B4 4C02 B4 4C03 B4 4C04 B4 4C05 B4 4C06 B4 4C07 B4 4C08 B4 4C09 B4 4C10 B4 4C11 B4 4C12 B4 4C13 B4 4C14 B4 4C15 B4 4C16 B4 4C17 B4 4C18 B4 4C19 B4 4C20 B4 4C21 B4 4C22 B4 4C23 B4 4C24 B4 4C25 B4 4C26 B4 4C27 B4 4C28 B4 4C29 B4 4C30 B4 4C31 B4 4C32 B4 4C33 B4 4C34 B4 4C35 B4 4C36 B4 4C37 B4 4C38 B4 4C39 B4 4C40 B4 4C41 B4 4C42 B4 4C43 B4 4C44 B4 4C45 B4 4C46 B4 4C47 B4 4C48 B4 4C49 B4 4C50 B4 4C51 B4 4C52 B4 4C53 B4 4C54 B4 4C55 B4 4C56 B4 4C57 B4 4C58 B4 4C59 B4 4C60 B4 4C61 B4 4C62 B4 4C63 B4 4C64 B4 4C65 B4 4C66 B4 4C67 B4 4C68 B4 4C69 B4 4C70 B4 4C71 B4 4C72 B4 4C73 B4 4C74 B4 4C75 B4 4C76 B4 4C77 B4 4C78 B4 4C79 B4 4C80 B4 4C81 B4 4C82 B4 4C83 B4 4C84 B4 4C85 B4 4C86 B4 4C87 B4 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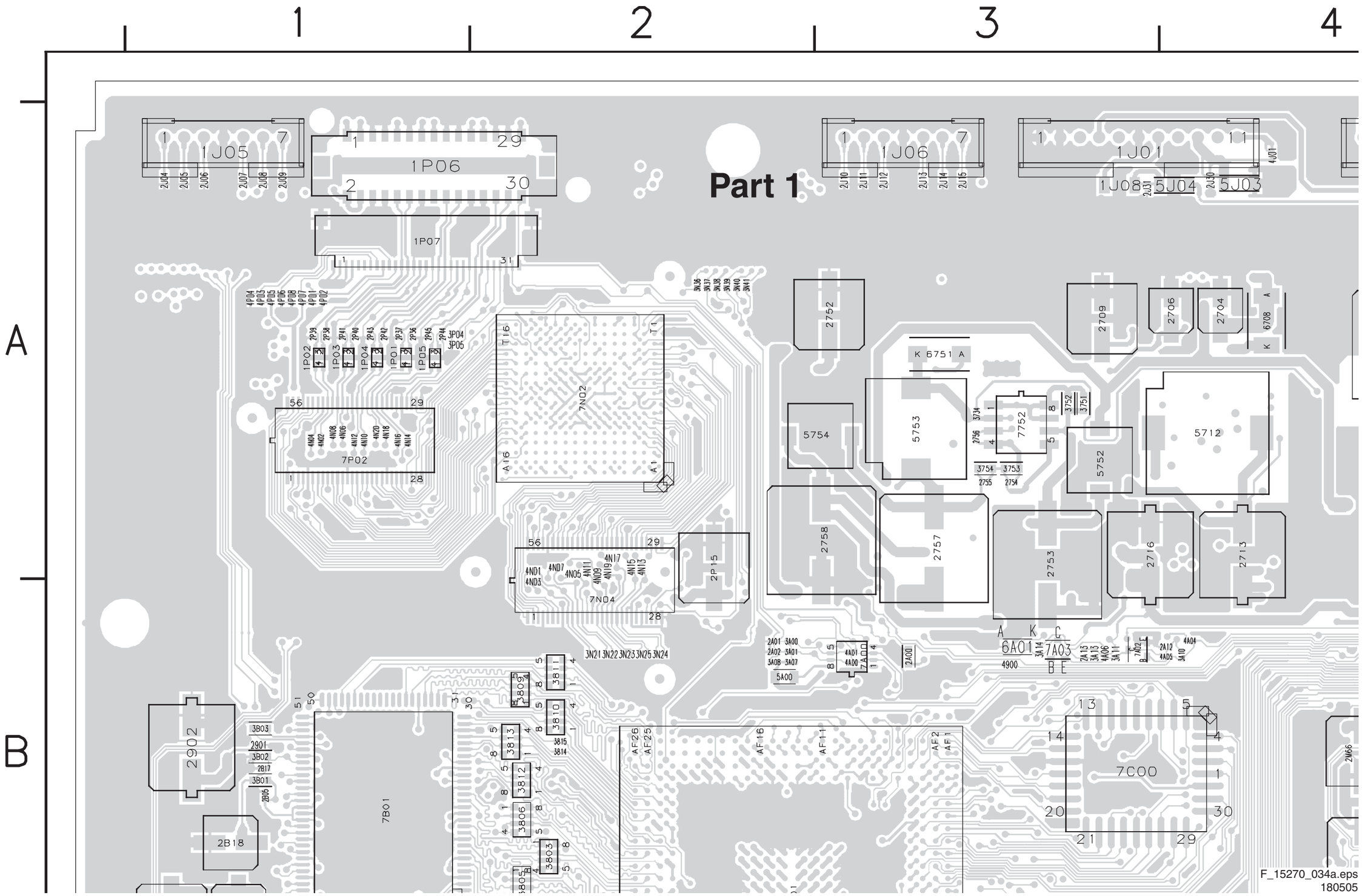
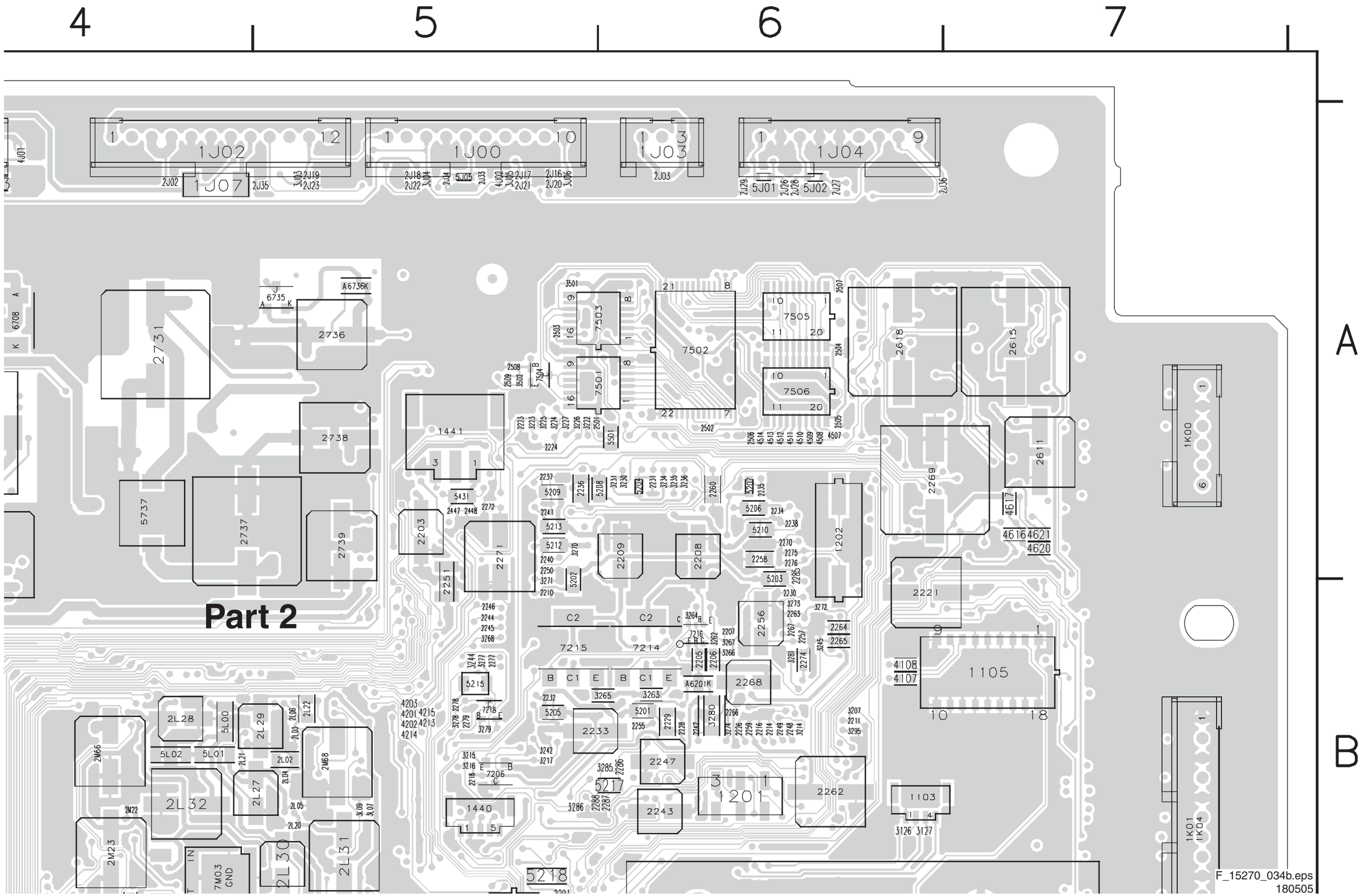
Layout Small Signal Board (Top Side Part 1)



Layout Small Signal Board (Top Side Part 2)



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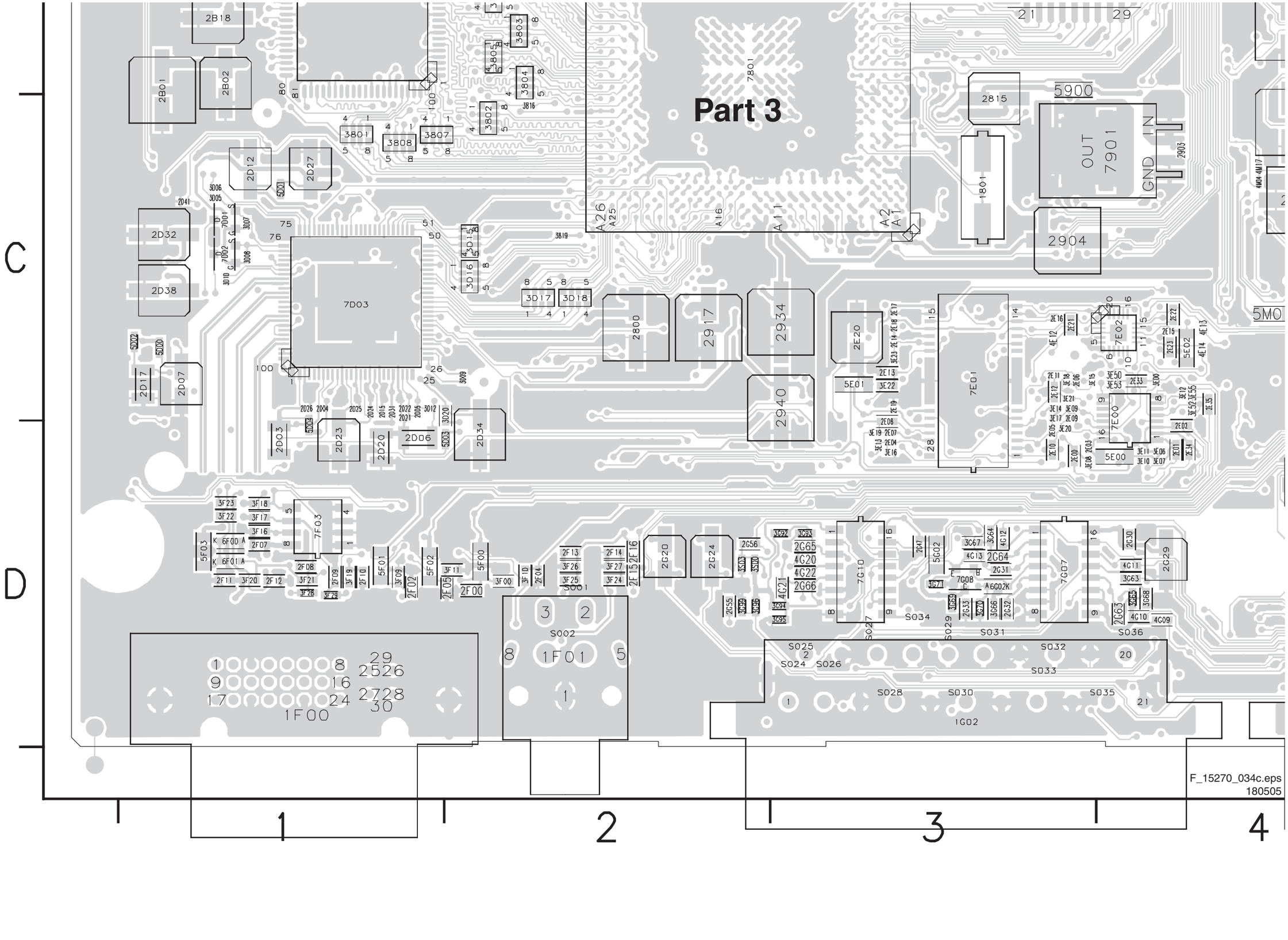
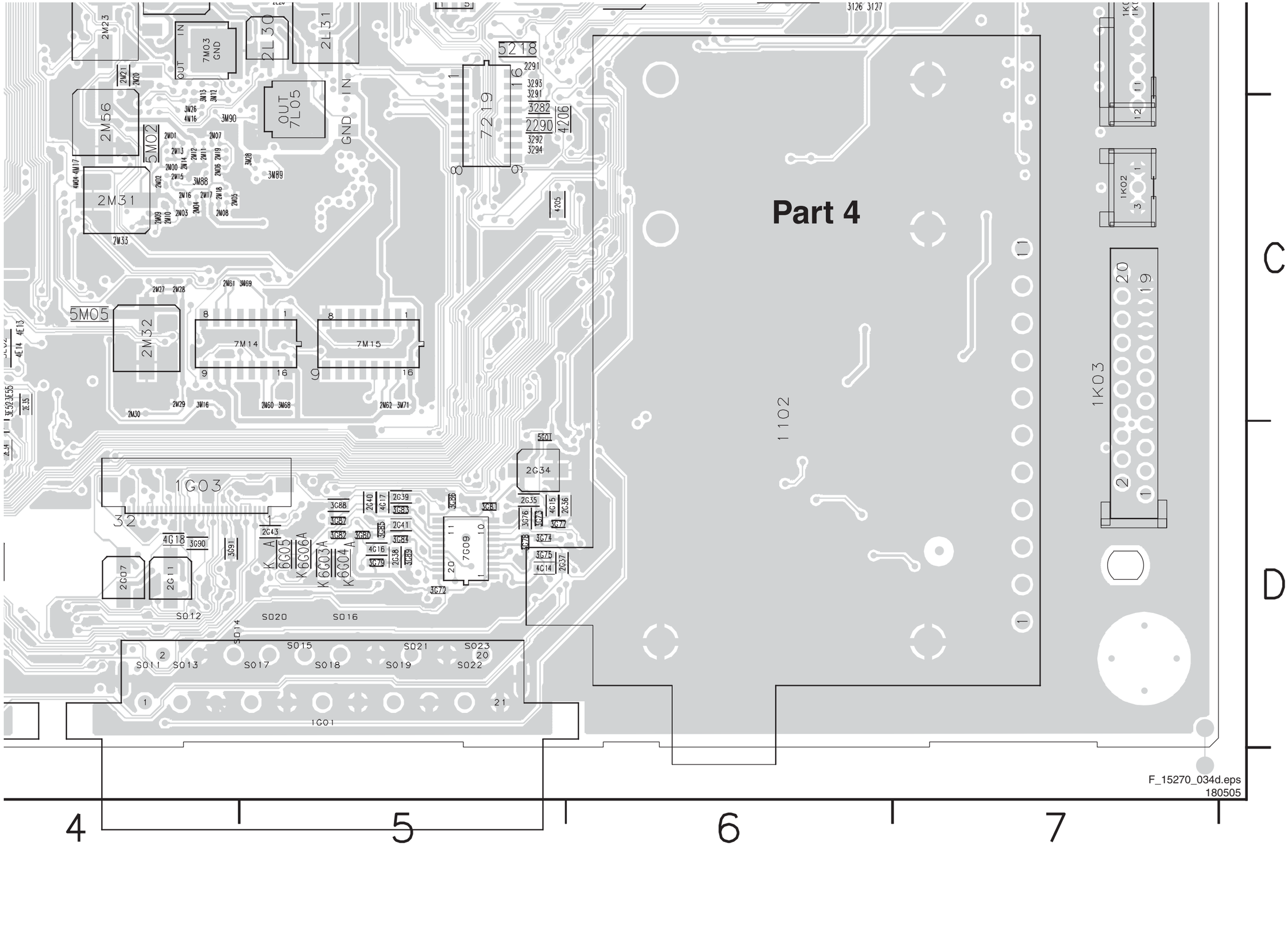


Layout Small Signal Board (Top Side Part 4)



Layout Small Signal Board (Bottom Side Overview)

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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 3L01 B3 3N46 B7 5108 D1 7603 A2
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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 3L20 B3 4114 C2 5758 A5 7756 A5
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 3L21 B4 4115 C2 5759 A5 7758 A5
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3L23 B3 4204 C3 5902 C6 7A01 C6
3L24 B4 4207 B3 5903 B5 7C01 B5
3L25 B4 4208 A3 5904 C5 7C02 C5
3L26 B4 4209 A3 5905 B6 7D00 C7
3L27 B4 4211 A2 5906 B6 7D04 C7
3L28 B4 4212 A2 5907 B6 7D05 C7
3L30 B3 4436 B3 5908 B7 7E03 C5
3L31 B3 4437 B3 5909 C5 7E04 C5
3L32 B3 4438 B3 5910 C5 7E05 C5
3L33 B3 4439 B3 5911 C6 7G03 D3
3L34 B3 4440 B3 5C00 B5 7G05 D5
3L35 B3 4441 C3 5E03 C5 7L01 B3
3L36 B3 4501 A2 5G00 D2 7L02 B3
3L37 B3 4502 A2 5K00 A1 7L03 B3
3L38 B3 4503 A2 5K01 B1 7L04 B4
3L39 B3 4504 A2 5K02 A1 7L06 C3
3M00 B4 4505 A2 5L03 B3 7L07 C3
3M01 C4 4506 A2 5L04 B3 7L08 B3
3M02 C4 4601 A1 5M00 B4 7M00 C4
3M03 C4 4602 A1 5M01 C3 7M01 C4
3M04 C4 4603 A2 5M03 B4 7M17 B4
3M06 C3 4604 A1 5M04 B3 7N01 A6
3M07 C3 4605 A2 5N01 A7 7N03 A6
3M08 C3 4606 B1 5N02 A6 7P01 A6
3M09 C3 4609 A1 5N03 B6
3M10 C4 4610 A2 5N04 B6
3M11 C4 4611 A1 5N05 A7
3M14 B4 4612 A1 5P01 A6
3M15 C4 4613 B1 5P02 A6
3M27 B3 4614 A1 5P03 A6
3M29 C3 4615 A1 5P04 A7
3M50 C4 4618 A1 5P05 A7
3M51 C4 4619 A1 5P06 A7
3M52 C4 4801 C6 6101 D1
3M53 C4 4A02 C6 6102 D1
3M54 C4 4A03 C6 6103 D2
3M55 C4 4D00 C7 6104 C2
3M56 C4 4D01 C7 6105 C2
3M57 C4 4E03 D5 6106 D2
3M58 C4 4E10 C5 6107 D2
3M59 C4 4E11 C5 6204 A2
3M78 C4 4G00 D4 6205 A2
3M79 B4 4G01 D3 6206 A2
3M86 B4 4G05 D6 6430 A1
3M87 B4 4G06 D5 6431 A1
3N01 A6 4G19 D4 6601 A1
3N02 A6 4G26 D2 6709 A4
3N03 A6 4K01 A1 6712 A4
3N04 A6 4K02 C1 6733 A4
3N05 A6 4K03 A1 6740 B3
3N06 A6 4K04 A1 6E00 C5
3N07 A6 4K05 A1 6E01 C5
3N08 A6 4K06 B1 6E02 C5
3N09 A6 4K07 B1 6E03 C5
3N10 A6 4L00 B4 6G00 D2
3N11 A6 4L01 B4 6G01 D5
3N12 A6 4L02 B3 6G07 D5
3N13 A6 4L03 B3 6G08 D5
3N14 A6 4L04 B3 6G09 D5
3N15 A7 4L05 B3 6G10 D5
3N16 A7 4M00 C4 6N01 A7
3N17 A7 4M01 C4 7101 C2
3N18 A7 4M02 C4 7102 C2
3N19 A6 4M03 C4 7103 C2
3N20 A6 4M05 C4 7201 A2
3N26 B6 4M06 C4 7202 A2
3N27 A6 4M08 C4 7203 A2
3N28 A7 4M09 C4 7204 A2
3N29 A6 4M10 C4 7205 A2
3N30 A7 4N21 B6 7207 A2
3N31 A7 4N22 B6 7208 B3
3N32 A7 4P09 A6 7209 A3
3N33 A7 4P10 A6 7210 A3
3N34 A7 5101 C2 7211 A2
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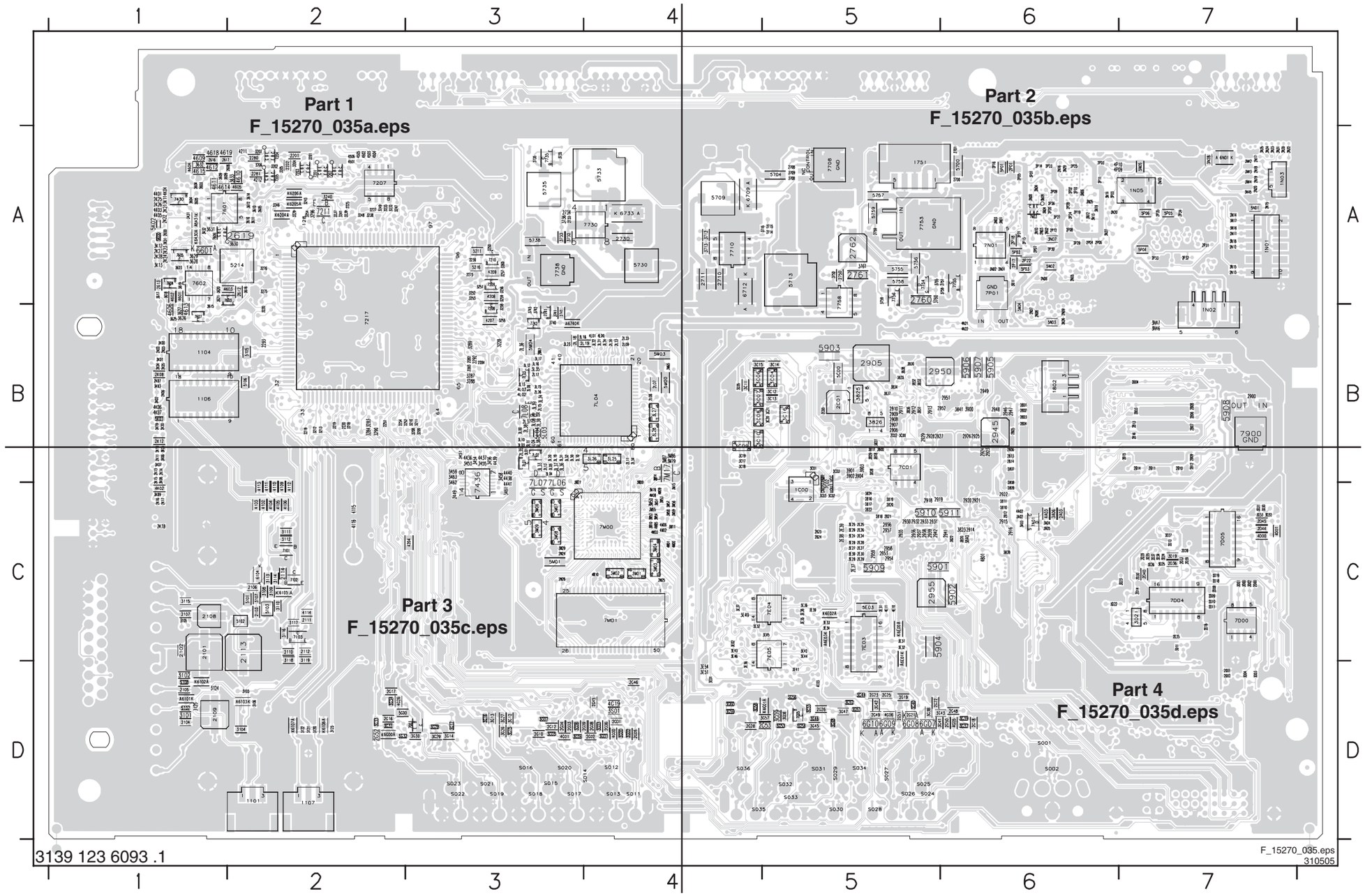

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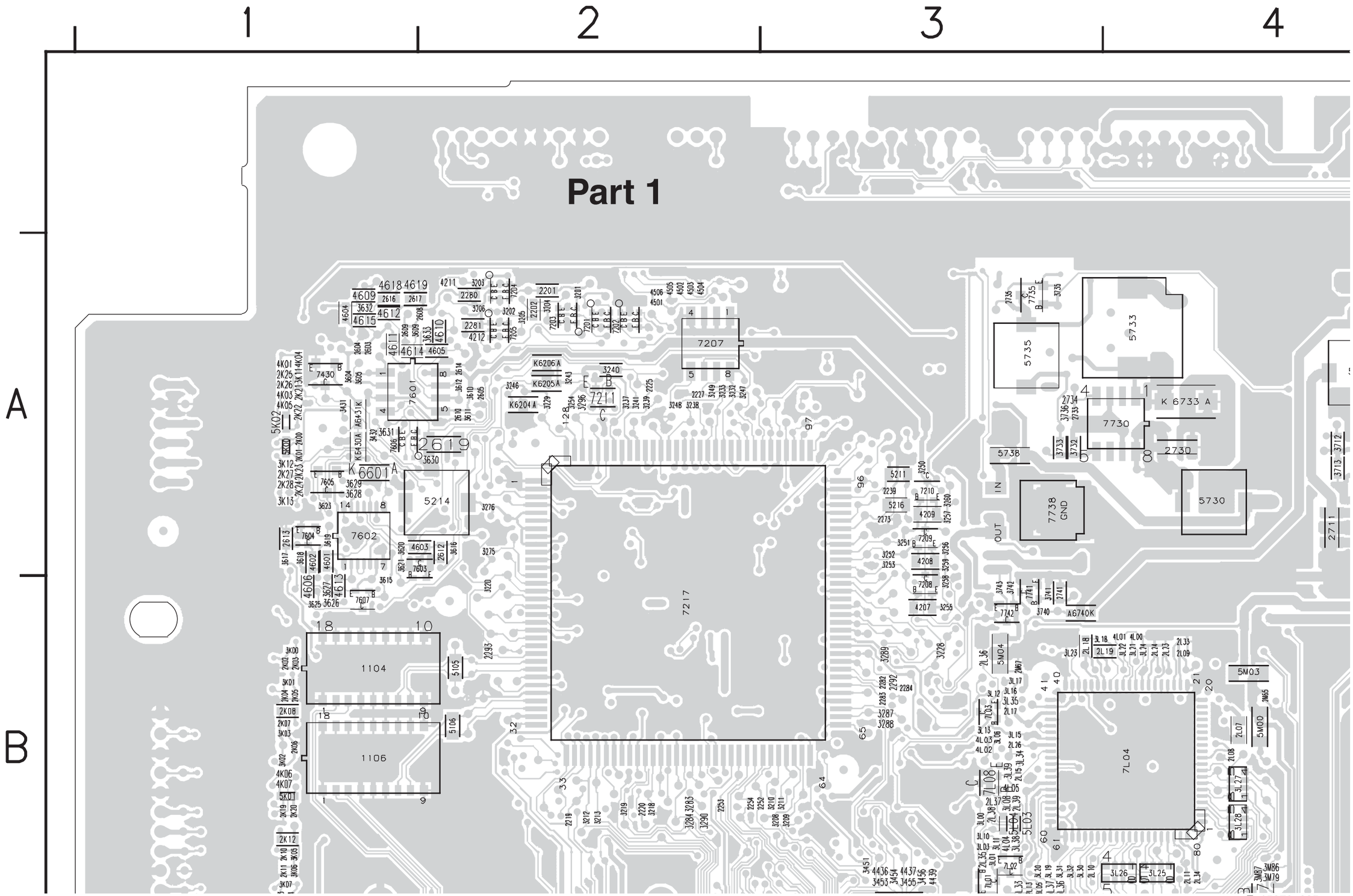
Layout Small Signal Board (Bottom Side Part 1)



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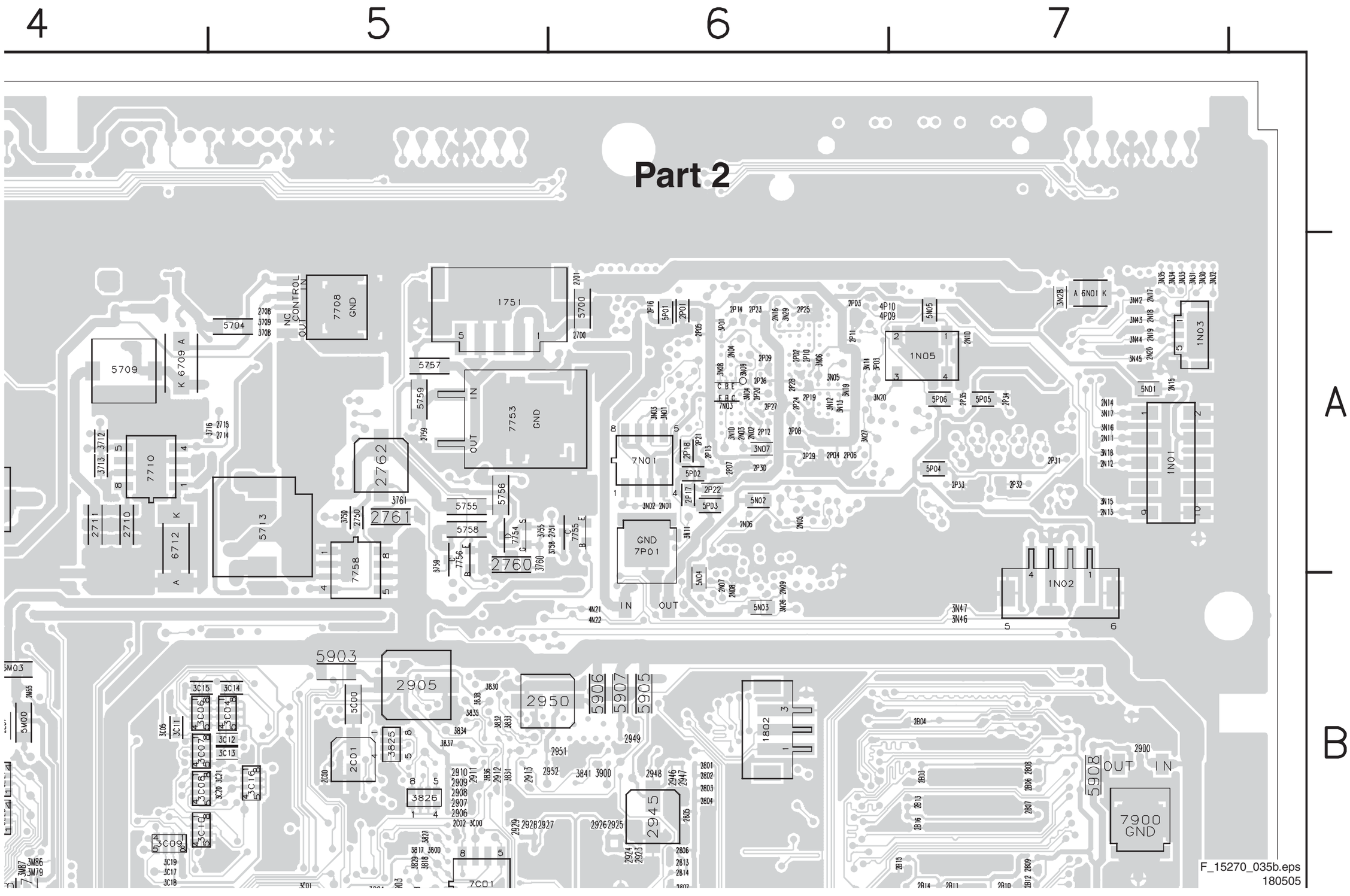
Layout Small Signal Board (Bottom Side Part 2)



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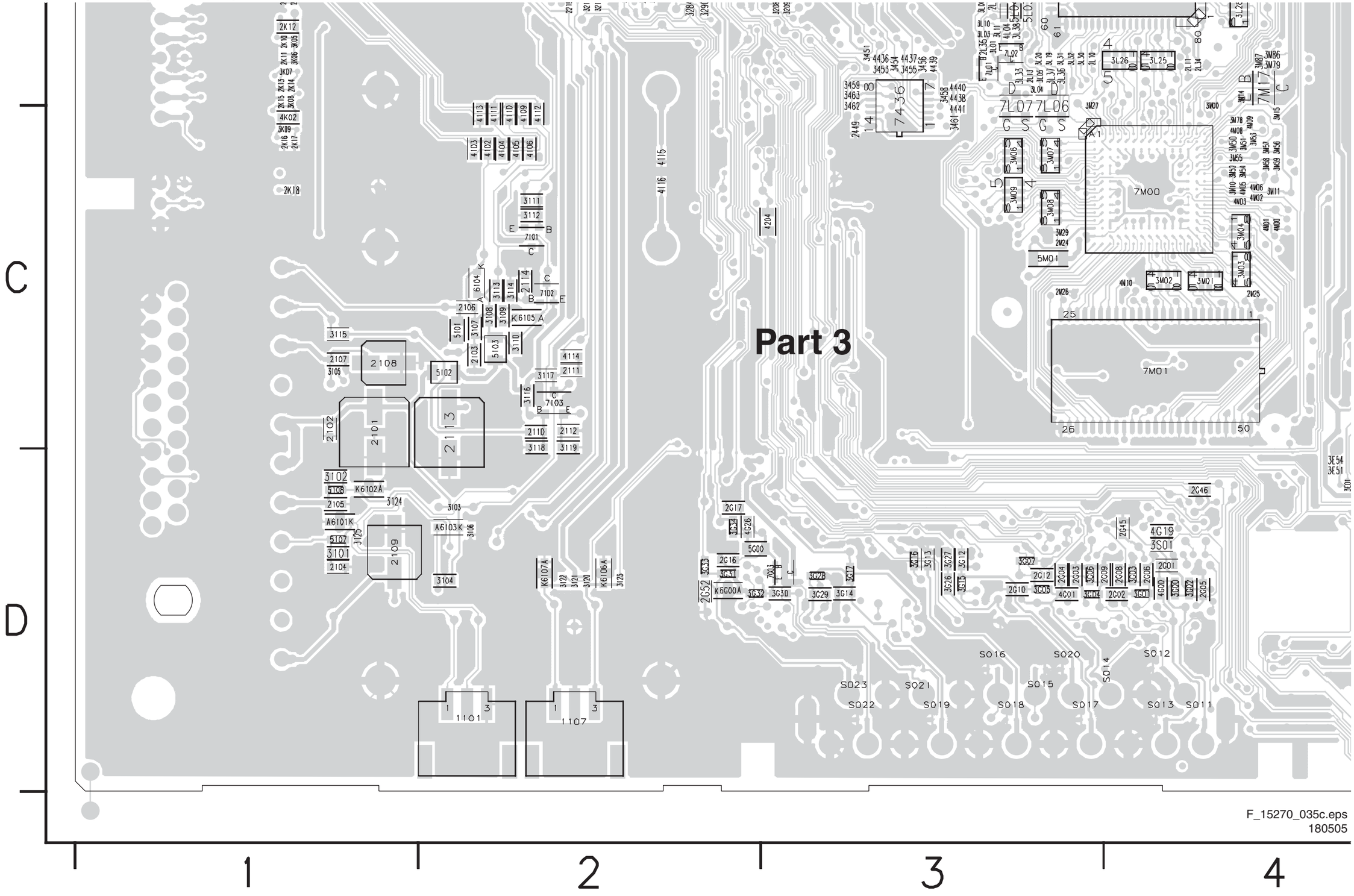

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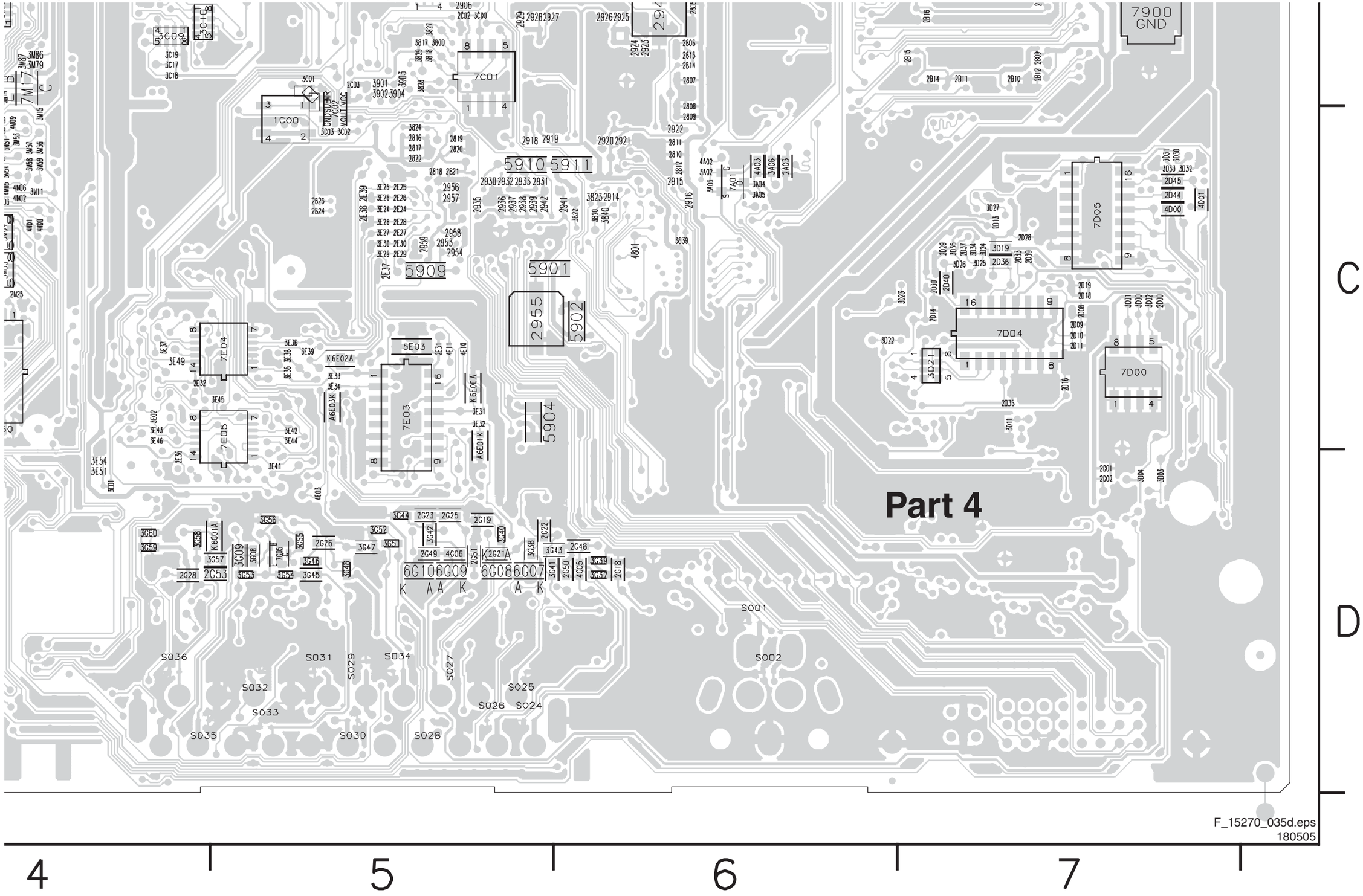
Layout Small Signal Board (Bottom Side Part 4)



SSB: Tuner and VIF

B1 TUNER & IF

1102	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

1102 UV1318ST/AIH-MK3 F101 — TUNER — 4115 RES, 4116 RES

1V7 1, NC 2, 5V3 3, 2V6 4, 2V6 5, 5V3 7, NC 8, 7V1 9, 0V 10, 0V 11

AGC, TU, AS, SCL, SDA, NC1, 5V, ADC, 33V, NC2, IFOUT

+5VSW — 5102 6u8 — 2101 100u 16V, 2102 10n — 5VSW_a

5103 6u8 — 2113 100u 16V, 2103 10n — 5VSW_b

F108 IF-TER — 5101 390n

F103

SERVICE COMPAIR 1101 — F102, F104 — 3124 100R, 3125 100R

SCL, SDA — I112, I113 — 5107 RES, 5108 RES, 3102 100R, 3101 100R

6101 BZX384-C6V8, 6102 BZX384-C6V8

F105

5VSW_a — I101 — 2104 22p, 2105 22p — 6103 * BAS316 — 3104 * 10K

RF_AGC — F106

+VTUN — 3105 1K0 — F107 — 2107 47n, 2108 2u2 50V — 3106 RES

2109 22u 16V

B6

For ITV Only 1103 — SCL 3126 100R, SDA 3127 100R, +3V3STBY

SEL_IF_SDM

F109 — 3111 22K — I104 — 0V — 7101 BC847BW — I105 0V — 3112 18K

5VSW_b — I102 — 3107 6K8, 3108 2K2, 3110 2K2 — 6104 1SS356, 6105 1SS356

2106 10n — I103 — 3109 2K2

I110 — 3113 22K — I106 — 7102 BC847BW — 2114 1u0, 3114 47K

FOR I93 ONLY

+5VSW — 3116 100K, 3117 820R — I108 — 2111 1n0 — 7103 BFS20 — I107 — 2110 1n0 — 3115 — I111

I109 — 3118 150K, 3119 560R, 2112 1n0 — 4114 — F114

FOR FM RADIO ONLY

SSIF

+3V3STBY — 3120 10K, 3121 10K

B7 FROM SCALER

SERVICE UART 1107 — UART_TX 3122 100R, UART_RX 3123 100R — F115, F116, F117

6106 BZX384-C6V8, 6107 BZX384-C6V8

B2

1104 * OFWK3953L — 4102 *, 4103 *, 4104 *, 4105 *, 4106 * — I1, I2, O1, O2, GND, NC, 38M9 — 5105 RES — VIF1 F110, VIF2 F111

4107 *, 4108 *

1105 * OFWK3955L — I1, I2, O1, O2, GND, NC, 38M — 4109, 4110 *, 4111 *, 4112, 4113 *

1106 * OFWK9656L — I, ISWI, O1, O2, GND, NC, 40M4 — 5106 RES — SIF1 F112, SIF2 F113

EUROPE & AP PAL-MUTLI ONLY

3139 123 6141.1

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1101 B1 7101 D5
1102 A1 7102 D7
1103 D1 7103 E6
1104 B8 F101 B1
1105 C8 F102 B1
1106 E8 F103 C2
1107 F3 F104 C1
2101 A6 F105 C3
2102 A6 F106 D1
2103 A6 F107 D2
2104 C2 F108 A4
2105 C3 F109 D4
2106 C5 F110 B9
2107 D2 F111 B9
2108 D2 F112 E9
2109 D4 F113 E9
2110 E5 F114 F7
2111 E6 F115 F3
2112 F6 F116 F3
2113 A6 F117 F3
2114 D6 I101 C2
3101 C1 I102 B6
3102 C1 I103 C5
3103 C2 I104 D5
3104 C3 I105 D5
3105 D1 I106 D6
3106 D2 I107 E5
3107 B5 I108 E6
3108 B6 I109 F6
3109 C5 I110 D7
3110 B7 I111 E5
3111 D4 I112 C1
3112 D5 I113 C1
3113 D6
3114 D6
3115 E5
3116 E6
3117 E6
3118 F6
3119 F6
3120 F2
3121 F2
3122 F1
3123 F1
3124 B1
3125 C1
3126 D1
3127 D1
4102 B7
4103 B7
4104 B7
4105 B7
4106 C7
4107 C9
4108 C9
4109 E7
4110 E7
4111 E7
4112 E7
4113 E8
4114 F6
4115 B3
4116 B3
5101 B4
5102 A5
5103 A5
5105 B9
5106 E9
5107 C1
5108 C1
6101 C1
6102 C1
6103 C3
6104 C6
6105 C7
6106 F2
6107 F2

SSB: Hercules

B2 HERCULES

AUDIO PROCESSING

HERCULES
TDA15021H/N1A11

VIDEO SIGNAL PROCESSOR

3139 123 6141.1

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070906

1201 B6	3210 B5	4214 G5	I201 B4
1202 G9	3211 B5	4215 G5	I202 B4
2201 A3	3212 B6	5201 C4	I203 C5
2202 B3	3213 B6	5202 C5	I204 C6
2203 D2	3214 C6	5203 B7	I205 C6
2205 G4	3215 B6	5204 D4	I206 B7
2206 G4	3216 B6	5205 D4	I207 C7
2207 G4	3217 C6	5206 D4	I208 C7
2208 H3	3218 C6	5207 D4	I209 C7
2209 H4	3219 C7	5208 D4	I210 C8
2210 C5	3220 C7	5209 E4	I211 C8
2211 C5	3222 C8	5210 E4	I212 C8
2214 C6	3223 C8	5211 E4	I213 C9
2216 C6	3224 C8	5212 E4	I214 C9
2218 A6	3225 B8	5213 E4	I215 C9
2219 B6	3226 B8	5214 G9	I216 C10
2220 C7	3227 C8	5215 F10	I217 C11
2221 B7	3228 D2	5216 F9	I218 E2
2223 B8	3229 C8	5217 H6	I219 D5
2224 C8	3230 B8	5218 F2	I220 D5
2225 B9	3231 B8	6201 E4	I221 D4
2226 C9	3232 B8	6204 D11	I222 D5
2227 B10	3233 B8	6205 D11	I223 E5
2228 D4	3234 B9	6206 D11	I224 E5
2229 D5	3235 B9	7201-1 B1	I225 C9
2230 D4	3236 B9	7201-2 C1	I226 F8
2231 D4	3237 C9	7202-1 C2	I227 F5
2232 D4	3238 C9	7202-2 C2	I228 F6
2233 D4	3239 C9	7203-1 C2	I229 F7
2234 D4	3240 B9	7203-2 C3	I230 F6
2235 D4	3241 B10	7204-1 A3	I231 F7
2236 E4	3242 C10	7204-2 B3	I232 F7
2237 E4	3243 C10	7205-1 B4	I233 F7
2238 E4	3244 D2	7205-2 B3	I234 F8
2239 E4	3245 C10	7206 B6	I235 F8
2240 E4	3246 C10	7207 B11	I236 F8
2241 E4	3247 B10	7208 E2	I237 F8
2242 E4	3248 B10	7209 D2	I238 F9
2243 F4	3249 B11	7210 D2	I239 F9
2244 F5	3250 D1	7211 F3	I240 F9
2245 F5	3251 D3	7214 G3	I241 B9
2246 F5	3252 E3	7215 G4	I242 F3
2247 G5	3253 E3	7216-1 G3	I243 D3
2248 G6	3254 F3	7216-2 H2	I244 B6
2249 G6	3255 E1	7217 D5	I246 D2
2250 G6	3256 E2	7218 G10	I247 D3
2251 G6	3257 E2	7219 F1	I248 E3
2252 G6	3258 F1	F201 B2	I254 F5
2253 G7	3259 F2	F202 B2	I255 F6
2254 G7	3260 F2	F203 B2	I256 F6
2255 G7	3262 G2	F204 B2	I257 F6
2256 G7	3263 G3	F205 B6	I258 F7
2257 G7	3264 G3	F206 B6	I259 F7
2258 G4	3265 G3	F207 C7	I262 G8
2259 G7	3266 F4	F208 C7	I264 F8
2260 G7	3267 G4	F209 B7	I265 F10
2262 G7	3268 F5	F210 F1	I266 G10
2263 G8	3270 G6	F211 C8	I267 F10
2264 G8	3271 G6	F212 C7	I268 G10
2265 G8	3272 G8	F213 C9	I269 C11
2266 G8	3273 G8	F214 C9	I270 B10
2267 G8	3274 G8	F215 C9	I271 B10
2268 G8	3275 G8	F216 C10	I272 B10
2269 G9	3276 G9	F218 B10	I273 C9
2270 G9	3277 G10	F219 C11	I274 B8
2271 F9	3278 F11	F220 D2	I275 B8
2272 F9	3279 G10	F221 E2	I277 C8
2273 F9	3280 E4	F222 D5	I278 C8
2274 F9	3281 G7	F223 D5	I283 C5
2275 G9	3282 F2	F224 D5	I284 C5
2276 G9	3283 C7	F225 E5	I285 C5
2277 F10	3284 C7	F226 E5	I288 C5
2278 F10	3285 H6	F227 E4	I289 A3
2279 G11	3286 H5	F228 E5	I290 B3
2280 A2	3287 C7	F229 E5	I291 B3
2281 B2	3288 C7	F230 G4	I292 B3
2282 F9	3289 D2	F231 H4	I293 B3
2283 F9	3290 B7	F232 F4	I294 B3
2284 F10	3291 F2	F233 F4	I297 B8
2285 G5	3292 F2	F234 F5	I298 C7
2286 G7	3293 G2	F235 F5	
2287 H6	3294 G2	F236 F5	
2288 H6	3295 G7	F237 F6	
2290 G2	3296 C4	F238 F6	
2291 F1	4201 G4	F239 F6	
2292 F10	4202 G4	F240 F6	
2293 C10	4203 G5	F241 G6	
3201 B2	4204 C9	F242 G7	
3202 A3	4205 C9	F243 G7	
3203 A3	4206 F2	F244 F7	
3204 B2	4207 E2	F245 G8	
3205 B3	4208 E2	F246 F9	
3206 B4	4209 E2	F247 D10	
3207 C5	4211 A4	F248 F7	
3208 B5	4212 B4	F249 E10	
3209 B5	4213 G5	F250 B7	

SSB: Sync Interface

B3 SYNC INTERFACE

B3

B 1 7
TO SIDE CONNECTORS

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

B2

HOUT
+3V3STBY
3451
4K7
I443
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
3463
RES
+3V3SW
7436-3
74LVC14APW
+3V3SW
7436-4
74LVC14APW
COL_HREF
4440
3458
100R
H_DELAY
4438
RES
3459
100R
H_1FH

B 1 9

+3V3SW
7436-6
74LVC14APW
+3V3SW
7436-5
74LVC14APW
2449
100n
COL_VA
4441
3461
100R
Vsync_SDTV
4439
RES
3462
100R
V_1FH

B 1 3

B7

SC1_CVBS_RF_OUT

B 2 &
B 1 5

1440
I449
I450
BM05B-SRSS-TBT

+12VSW
5431
I451
+5V
I452
2447
10p
2448
10p
1441
B3B-PH-SM4-TBT(LF)

FOR ITV ONLY

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

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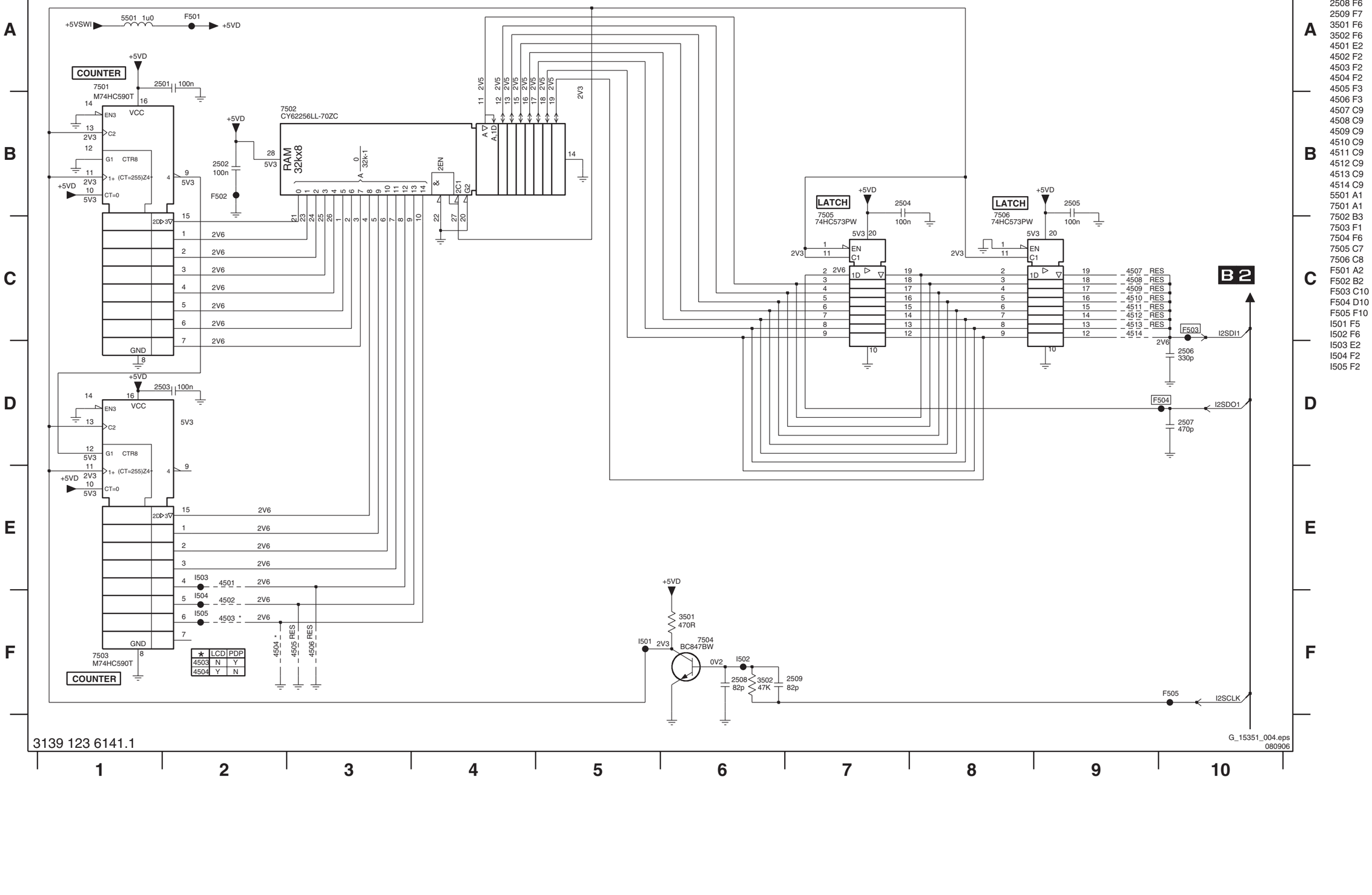
SSB: Audio Delay Line (Lipsync)

B4 AUDIO DELAY LINE (LIPSYNC)

2501 A1
2502 B2
2503 D1
2504 B7
2505 B9
2506 D10
2507 D10
2508 F6
2509 F7
3501 F6
3502 F6
4501 E2
4502 F2
4503 F2
4504 F2
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 C7
7506 C8
F501 A2
F502 B2
F503 C10
F504 D10
F505 F10
I501 F5
I502 F6
I503 E2
I504 F2
I505 F2



SSB: Audio Processing

B5 AUDIO PROCESSING

FROM HERCULES B2

AUDOUTLSL
AUDOUTLSR
AUDIO-L
AUDIO-R
SOUND_ENABLE
POWER_DOWN
EXT_MUTE
OUT_MUTE
HP_DET_R_DC
TV ONLY
HPIC_LIN
HPIC_RIN
HPIC_LOUT
HPIC_ROUT
HP_LOUT
HP_ROUT
SOUND_ENABLE_1
POR_AUDIO
RESERVED FOR UFD
3.2 TO 4.3V
+5VSW
+3V3SW
+3V3STBY
+5V
3V3
3V4
3V2
5V
5V2
0V

7601-1 TS482IDT
7601-2 TS482IDT
7602-1 74HC08PW
7602-2 74HC08PW
7602-3 74HC08PW
7602-4 74HC08PW
7604 BC847BW
7605 PDTA143ET
7606-1 BC847BS
7606-2 BC847BS
7607 BC847BW
6601 BZX384-C3V3

2603 B5 I612 D7
2604 B6 I613 E4
2605 B6 I614 E4
2608 C5 I615 F4
2609 C6 I616 F8
2610 C6 I617 F5
2611 C6 I618 B6
2612 F9 I619 D8
2613 C8
2614 C8
2615 B9
2616 B4
2617 C4
2618 B8
2619 F5
3604 B6
3605 B7
3609 C6
3610 C6
3611 C6
3612 B7
3615 D7
3616 E9
3617 D9
3618 D8
3619 D8
3620 F8
3621 F8
3623 F5
3625 C7
3626 D2
3627 E2
3628 E5
3629 E5
3630 F6
3631 F6
3632 B9
3633 B9
4601 D2
4602 C8
4603 F8
4604 B9
4605 C9
4606 D7
4609 B9
4610 B9
4611 B4
4612 C5
4613 D2
4614 G8
4615 G8
4616 D4
4617 D5
4618 B4
4619 C4
4620 F5
4621 F5
6601 F4
7601-1 B7
7601-2 C7
7602-1 D4
7602-2 D5
7602-3 E5
7602-4 E6
7603 E8
7604 D8
7605 F4
7606-1 F6
7606-2 F6
7607 D7
F601 B4
F602 B4
F603 B6
F604 C6
F605 C6
I602 B8
I603 C8
I604 B9
I605 B9
I606 D4
I607 D4
I608 B5
I610 C5
I611 D7

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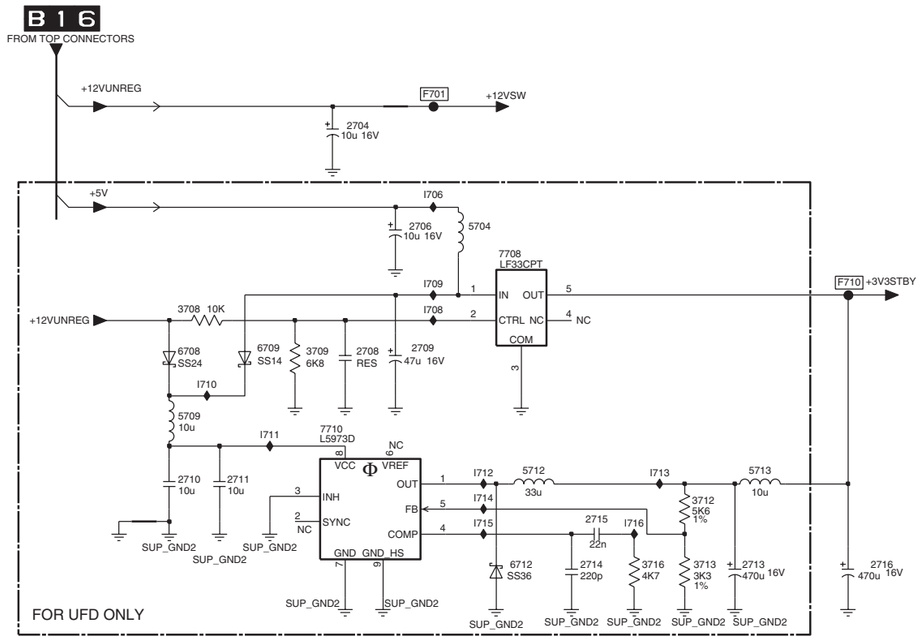
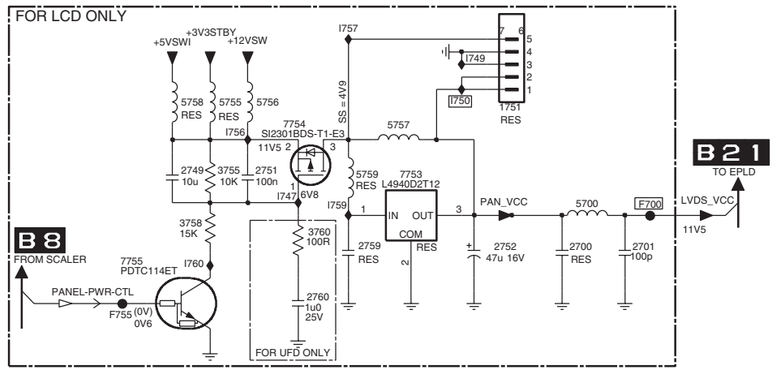
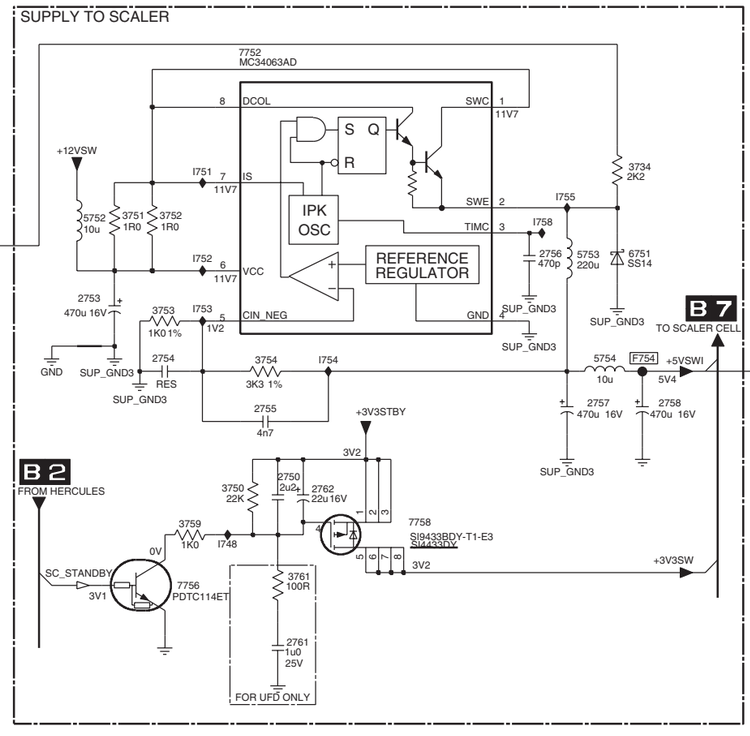
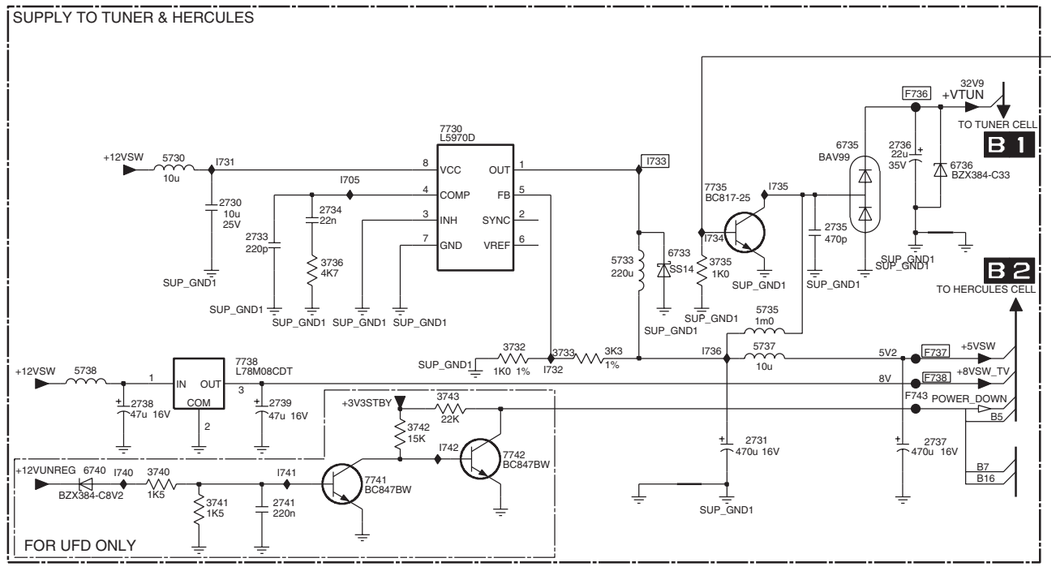
SSB: DC-DC Converter

B6 DC-DC CONVERTER









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1751 A10	7752 D8
2700 B10	7753 B9
2701 B11	7754 B9
2704 A3	7755 B8
2706 B3	7756 G8
2708 C3	7758 F9
2709 C3	F700 B11
2710 C2	F701 A3
2711 C2	F710 B5
2713 D5	F736 E6
2714 D4	F737 F6
2715 D4	F738 G6
2716 D6	F743 G6
2730 F2	F754 E11
2731 G5	F755 C8
2733 F2	I705 E3
2734 F3	I706 B3
2735 F5	I708 C3
2736 E6	I709 B3
2737 G6	I710 C2
2738 G1	I711 C2
2739 G2	I712 C3
2741 G2	I713 C4
2749 B8	I714 D3
2750 F9	I715 D3
2751 B8	I716 D4
2752 B10	I731 E2
2753 E7	I732 G4
2754 E8	I733 E4
2755 F8	I734 F5
2756 E10	I735 E5
2757 F10	I736 F5
2758 F11	I740 G1
2759 B9	I741 G2
2760 C9	I742 G3
2761 G9	I747 B9
2762 F9	I748 F8
3708 C2	I749 A10
3709 C2	I750 A10
3712 D5	I751 D8
3713 D5	I752 E8
3716 D4	I753 E8
3732 F4	I754 E9
3733 F4	I755 D10
3734 D10	I756 B8
3735 F5	I757 A9
3736 F3	I758 E10
3740 G2	I759 B9
3741 G2	I760 B8
3742 G3	
3743 G3	
3750 F8	
3751 E8	
3752 E8	
3753 E8	
3754 E8	
3755 B8	
3758 B8	
3759 F8	
3760 B9	
3761 G9	
5700 B10	
5704 B3	
5709 C2	
5712 C4	
5713 C5	
5730 E2	
5733 F4	
5735 F5	
5737 F5	
5738 G1	
5752 E7	
5753 E10	
5754 E10	
5755 A8	
5756 A8	
5757 B9	
5758 A8	
5759 B9	
6708 C2	
6709 C2	
6712 D4	
6733 F5	
6735 E5	
6736 E6	
6740 G1	
6751 E10	
7708 B4	
7710 C3	
7730 E3	
7735 E5	
7738 F2	
7741 G3	
7742 G4	

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

+3V3_PLL F802 2815 22u 16V 2816 2817 2818 2819 100n 2820 2821 2822

B11 FROM SDRAM

B10 FROM SDRAM

#RESET K1 RESET_

FSVREF

3800 10K R4 F801 EXTCLK\GPI_02 J24 K26 FSVREF1 FSVREFVSS1 W25 W24 FSVREF2 FSVREFVSS2

2813 2814 100n

7801-12 GM1501-LF-BD SYSTEM FS_2.5 FS_2.5 VDDA18_DLL VSSA18_DLL K25

M3 IRI0\GPIO_29 M4 IRI1\GPIO_28

FSDATA0 3801-4 4 22R FSDATAU0 E24 FSDATA1 3801-3 3 22R FSDATAU1 E25 FSDATA2 3801-2 2 22R FSDATAU2 E26 FSDATA3 3801-1 1 22R FSDATAU3 G26 FSDATA4 FSDATAU4 G24 FSDATA5 3802-4 4 22R FSDATAU5 H26 FSDATA6 3802-3 3 22R FSDATAU6 H24 FSDATA7 3802-2 2 22R FSDATAU7 J25 FSDATA8 3802-1 1 22R FSDATAU8 T26 FSDATA9 FSDATAU9 R25 FSDATA10 3803-4 4 22R FSDATAU10 P24 FSDATA11 3803-3 3 22R FSDATAU11 P26 FSDATA12 3803-2 2 22R FSDATAU12 N24 FSDATA13 3803-1 1 22R FSDATAU13 N26 FSDATA14 3804-1 1 22R FSDATAU14 M25 FSDATA15 3804-2 2 22R FSDATAU15 L24 FSDATA16 3804-3 3 22R FSDATAU16 L25 FSDATA17 3804-4 4 22R FSDATAU17 M26 FSDATA18 FSDATAU18 M24 FSDATA19 3805-4 4 22R FSDATAU19 N25 FSDATA20 3805-3 3 22R FSDATAU20 N23 FSDATA21 3805-2 2 22R FSDATAU21 P23 FSDATA22 3805-1 1 22R FSDATAU22 R26 FSDATA23 3806-1 1 22R FSDATAU23 R24 FSDATA24 3806-2 2 22R FSDATAU24 K24 FSDATA25 3806-3 3 22R FSDATAU25 J26 FSDATA26 3806-4 4 22R FSDATAU26 H25 FSDATA27 FSDATAU27 G23 FSDATA28 FSDATAU28 G25 FSDATA29 FSDATAU29 F24 FSDATA30 3807-4 4 22R FSDATAU30 F25 FSDATA31 3807-3 3 22R FSDATAU31 F26 3807-2 2 22R 3807-1 1 22R 3808-2 2 22R 3808-3 3 22R 3808-4 4 22R 3808-1 1 22R

AD25 FSADDRU0 AD26 FSADDRU1 AC24 FSADDRU2 AC25 FSADDRU3 AB26 FSADDRU4 AA24 FSADDRU5 AA25 FSADDRU6 AA26 FSADDRU7 Y24 FSADDRU8 AB25 FSADDRU9 AC26 FSADDRU10 AB24 FSADDRU11

FSADDRU3 3809-4 4 22R FSADDR(3) FSADDRU2 3809-3 3 22R FSADDR(2) FSADDRU1 3809-2 2 22R FSADDR(1) FSADDRU0 3809-1 1 22R FSADDR(0) FSADDRU8 3810-1 1 22R FSADDR(8) FSADDRU7 3810-2 2 22R FSADDR(7) FSADDRU6 3810-3 3 22R FSADDR(6) FSADDRU5 3810-4 4 22R FSADDR(5) FSADDRU4 3811-4 4 22R FSADDR(4) FSADDRU9 3811-3 3 22R FSADDR(9) FSADDRU11 3811-2 2 22R FSADDR(11) FSADDRU10 3811-1 1 22R FSADDR(10)

Y25 FSBKSELU0 Y26 FSBKSELU1 FSBKSEL0 FSBKSEL1

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

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

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

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

U23 FSCLKn U24 FSCLKp FSCLK- FSCLK+

L26 FSDQS 3816 22R FSDQS

FSBKSELU0 3814 22R FSBKSEL(0) FSBKSELU1 3815 22R FSBKSEL(1)

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

B9 TO SCALER INTRF

B11 TO FLASH / CONTROL

B12 TO HDMI

B20 TO EPLD

B19 TO COLUMBUS

+3V3SW 3819 RES

3820 10K I812 B17 VCLAMP\GPIO_31 COL_DE I818 D20 VDV\VSOG\GPIO07 3839 100R I815 B20 VODD\HSOUT\GPIO_06 V_1FH I800 C20 VVS\GPIO_05 H_1FH I816 D19 VHS_CSYNC\GPIO_04

7801-6 GM1501-LF-BD VIDEO

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 COL_YB(1:8)

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) 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 COL_Do(1:7)

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

B13 FROM MUX-SYNC INTF

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

B13 FROM MUX-SYNC INTF 3823 RES HDMI_VCLK

B12 FROM HDMI

SVCLK\GPI_0 D16 SVHSYNC\GPIO_02 C14 HDMI_VHS SVVSYNC\GPIO_01 B14 HDMI_VVS SVODD\GPIO_00 A14 3822 100R

HDMI_VDV SVDV\VCOAST\GPIO_03 D17 HDMI_Y(7) SVDATA7\GPIO_G00_B7 A17 HDMI_Y(6) SVDATA6\GPIO_G00_B6 A15 HDMI_Y(5) SVDATA5\GPIO_G00_B5 B15 HDMI_Y(4) SVDATA4\GPIO_G00_B4 C15 HDMI_Y(3) SVDATA3\GPIO_G00_B3 D15 HDMI_Y(2) SVDATA2\GPIO_G00_B2 A16 HDMI_Y(1) SVDATA1\GPIO_G00_B1 B16 HDMI_Y(0) SVDATA0\GPIO_G00_B0 C16

VCLK\GPI_01 A20 I817 COL_CLKASB 4801 COL_CLKASA

FROM COLUMBUS B19

CLK-SYN

+3V3_PLL 2823 22p G3 TCLK VDDA33_SDDS VDDA33_DDDS VDDA33_RPLL VDDA33_FPLL VSSA33_SDDS VSSA33_DDDS VSSA33_RPLL VSSA33_FPLL H3 J3 F4 G1 H2 J2 F3 H4 7801-11 GM1501-LF-BD

VDDD33_SDDS VDDD33_DDDS VDDD33_PLL VDDD33_PLL VSSD33_SDDS VSSD33_DDDS VSSD33_PLL ACS_RSET_HD J1 F2 J4 K4 G2

2820 100n 2821 100n 2822 100n +3V3_PLL 2824 22p XTAL G4 K2 I801 3824 3K3 1801 14M31818 SMD-49

B11 TO FLASH / CONTROL

7801-4 GM1501-LF-BD OCM-ADR

OCMADDR(0) AA1 OCMADDR(1) AA2 OCMADDR(2) AA3 OCMADDR(3) Y1 OCMADDR(4) Y2 OCMADDR(5) Y3 OCMADDR(6) W1 OCMADDR(7) W2 OCMADDR(8) W3 OCMADDR(9) V1

OCMADDR0 OCMADDR1 OCMADDR2 OCMADDR3 OCMADDR4 OCMADDR5 OCMADDR6 OCMADDR7\GPIO_18 OCMADDR8\GPIO_G11_B0 OCMADDR9\GPIO_G11_B1

OCMADDR10\GPIO_G11_B2 OCMADDR11\GPIO_G11_B3 OCMADDR12\GPIO_G11_B4 OCMADDR13\GPIO_G11_B5 OCMADDR14\GPIO_G11_B6 OCMADDR15\GPIO_G11_B7 OCMADDR16\GPIO_19 OCMADDR17\GPIO_20 OCMADDR18\GPIO_21 OCMADDR19\GPIO_22

V2 V3 V4 U1 U2 U3 U4 T1 T2 T3 OCMADDR(10) OCMADDR(11) OCMADDR(12) OCMADDR(13) OCMADDR(14) OCMADDR(15) OCMADDR(16) OCMADDR(17) OCMADDR(18) OCMADDR(19)

B11 TO FLASH / CONTROL

7801-5 GM1501-LF-BD OCM_DATA

OCMDATA(0) AD4 OCMDATA(1) AE4 OCMDATA(2) AE3 OCMDATA(3) AD3 OCMDATA(4) AF2 OCMDATA(5) AE2 OCMDATA(6) AD2 OCMDATA(7) AF1

OCMDATA0 OCMDATA1 OCMDATA2 OCMDATA3 OCMDATA4 OCMDATA5 OCMDATA6 OCMDATA7 OCMDATA8\GPIO_G10_B0 OCMDATA9\GPIO_G10_B1 OCMDATA10\GPIO_G10_B2 OCMDATA11\GPIO_G10_B3 OCMDATA12\GPIO_G10_B4 OCMDATA13\GPIO_G10_B5 OCMDATA14\GPIO_G10_B6 OCMDATA15\GPIO_G10_B7

3825-3 3 6 3825-2 2 7 3825-1 1 8 3826-3 3 6 3826-1 1 8 3825-4 4 5 3826-2 2 7 3826-4 4 5 10K I802 I803

OCM_TIMER1\PWM3\GPIO_19 D25 I804 BU_LHT_ADJ1

OCM_UDI\GPIO_27 M2 UART_RX

OCM_UDO\GPIO_26 M1 UART_TX

OCM_INT1\GPIO_30 L2 I805 POWER_DOWN

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

B9 TO SCALER INTRF

B1 TO TUNER

B6 TO DC-DC CONVERTER

B3B-PH-SM4-TBT(LF) FOR SW TESTING (RES) 1802

+3V3_IO 3837 10K 3838 10K I811 FB03 FB04

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 AD22 GPIO_G05_B0\DOGRN2 GPIO_G05_B3\DOGRN5

AC18 GPIO_G06_B0\DORED2 AD19 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

GPIO_G08_B0\JTAG_CLK\IDORED0 AD6 GPIO_G08_B1\JTAG_MODE\IDORED1 AE6 GPIO_G08_B2\JTAG_TDI\DOGRN0 AF6 GPIO_G08_B3\DVSI\DOGRN1 AE7 GPIO_G08_B4\JTAG_TDO\DOBLU0 AF7 GPIO_G08_B5\JTAG_RESET\DOBLU1 AD8

GPIO_G09_B0\IDERED0 AE4 GPIO_G09_B1\IDERED1 AF4 GPIO_G09_B2\IDEGRN0 AC5 GPIO_G09_B3\IDEGRN1 AD5 GPIO_G09_B4\IDEBLU0 AE5 GPIO_G09_B5\IDEBLU1 AF5

GPIO_14\IDHS AF17 GPIO_15\IDVS AD16 GPIO_16\IDEN AD7

I809 3834 10K I810 3835 10K I822 3836 10K

JTAG_CLK_SCL JTAG_TDI_SDA PC_HD_SEL SC2IAV2_SIDE_SW RGB\CVI_HDA_SEL TV_SC_CON TV_IRQ NVM_WP_SCALER SC2_OUT_SW Y_NOTCH

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

B12 TO HDMI

B22 FROM DIGITAL-IO (CINCH)

B16

B20 TO EPLD

+3V3_IO 3830 RES

HDMI_HOTPLUG_RESET

AV3_HDMI-AUDIO_SEL

PIXEL+_RESET (RESERVED FOR CINCH ONLY)

CVI_VGA_SEL

3831 100R PDP_GO_UP I819 3832 100R VS_ON

POWER_UP_OK 3833 10R I820 I821 HOT_PLUG

SD_HD_SEL

B23 RESERVED FROM ANALOG-IO (CINCH)

TO DIGITAL-IO B14 (SCART)

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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 B10 2824 B12 3800 B2 3801-1 C1 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 D1 3803-4 D1 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 E1 3806-2 E1 3806-3 E1 3806-4 E1 3807-1 E1 3807-2 E1 3807-3 E1 3807-4 E1 3808-1 F1 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 C6 3810-4 C6 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 D6 3813-2 D6 3813-3 D6 3813-4 D6 3814 D6 3815 D6 3816 E6 3817 E5 3818 E5 3819 F2 3820 F1 3822 G5 3823 G5 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 F12 3828 F12 3829 F12 3830 H10 3831 I9 3832 I9 3833 I9 3834 G12 3835 G12 3836 H12 3837 G14 3838 G14 3839 G3 3840 I3 3841 H14 4801 H5 7801-11 A11 7801-12 B4 7801-4 C11 7801-5 E11 7801-6 F4 7801-9 G11 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 F12 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 H12

SSB: Scaler

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 (IN, OUT, COM) — I900 — 5908 → +2V5_DDR
2900 100n; 2901 1n0; + 2902 470u 16V

+3V3SW — 7901 LD1086D2T18 (IN, OUT, COM) — I901 — I902 — +1V8
2903 100n; + 2904 47u 16V
- 5909 → +1V8_ADC
- 5910 → +1V8_DVI
- 5911 → +1V8_CORE

+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 AC5 AC1 AB4 AA4 Y4 W4 D23 D22 D17
CORE_1.8: U17 U16 U11 U10 T17 T16 T11 L16 L11 K17 K16 K11 K10
D_GND: A13 B13 K12 K13 K14 K15 L10 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
F904 — + 2934 47u 16V; 2935–2939 100n — +3V3_DVI

B14 TO DIGITAL-IO (SCART ONLY)

7801-2 GM1501-LF-BD DVI (DVI_1.8, DVI_3.3)
- SCL_DVI N4 ↔ DVI_SCLIGPI_07
- SDA_DVI N3 ↔ DVI_SDAIGPI_08
- RXC+IN A6 → RXCp
- RXC-IN B6 → RXCn
- RX0+IN A8 → RX0p
- RX0-IN B8 → RX0n
- RX1+IN A9 → RX1p
- RX1-IN B9 → RX1n
- RX2+IN A10 → RX2p
- RX2-IN B10 → RX2n
- B11 → REXT
- DVI_GND: A7 A11 B5 B7 C7 D7 D11
I906

B2 KEYBOARD 4900 RES

7801-3 GM1501-LF-BD ADC (LBADC_33)
+3V3_LBADC — + 2940 47u 16V; 2941 100n; C13
- 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; NC C5; NC D5; AC17 NC; K3 NC; F1 NC; NC NC

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; LVDSA_3.3_3 AC22; LVDSA_3.3_2 AC21; LVDSA_3.3_1 AD20; LVDSB_3.3_3 AC12; LVDSB_3.3_2 AD13; LVDSB_3.3_1 AD12

F905 +3V3_LVDS; F906 +3V3_LVDSA; F907 +3V3_LVDSB
+ 2945 22u 16V; 2946–2948 100n; 2949 100n; + 2950 22u 16V; 2951 100n; 2952 100n

B13 TO MUX-SYNC INTERFACE
B18 ADC
B19 & B2 TO COLUMBUS / 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
- AHSYNC L4
- SCL 3903 100R N2 → VGA_SCLIGPI_05
- SDA 3904 100R N1 → VGA_SDAIGPI_06
- SOG C3
- R_PR+ D2 → REDp
- R_PR- D1 → REDn
- G_Y+ C2 → GREENp
- G_Y- C1 → GREENn
- B_PB+ B2 → BLUEp
- B_PB- B1 → BLUEn
- ADC_AGND C4 D4 E1 E2 E4; ADC_DGND A5 B4
F910

B16 TO TOP CONN.
B6 FROM DC-DC CONVERTER

7801-7 GM1501-LF-BD CTRL
- 3900 3K3 I904 AC16 OEXTR
- FAN_SPEED C26 PWM0IGPIO_10
- HD_FILTER C25 PWM1IGPIO_11
- PPWRIGPIO_08 A26 PANEL-PWR-CTL
- PBIASIGPIO_09 B26 LAMP_ON_OFF
- DCLKIGPIO_17 AC7 NC
- PWM2IGPIO_12 D26 I903 BU_LHT_ADJ2 (RES)

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1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H

2900 C2 I905 C4
2901 C2 I906 E6
2902 C3
2903 E2
2904 E3
2905 A4
2906 A4
2907 A5
2908 A5
2909 A5
2910 A5
2911 A6
2912 A6
2913 A6
2914 A6
2915 A6
2916 A7
2917 A7
2918 A7
2919 A8
2920 A8
2921 A8
2922 A8
2923 A9
2924 A9
2925 A9
2926 A9
2927 A9
2928 A10
2929 A10
2930 C5
2931 C6
2932 C6
2933 C6
2934 C8
2935 C8
2936 C8
2937 C8
2938 C8
2939 C9
2940 B10
2941 B10
2942 C10
2945 D11
2946 D11
2947 D11
2948 D12
2949 D12
2950 D11
2951 D11
2952 D12
2953 E9
2954 E9
2955 E10
2956 E11
2957 E11
2958 E11
2959 E12
3900 F5
3901 E8
3902 E9
3903 F9
3904 F9
4900 B9
5900 A2
5901 B2
5902 B2
5903 B2
5904 B2
5905 B2
5906 C2
5907 C2
5908 C3
5909 D3
5910 E3
5911 E3
7801-1 F10
7801-10 C10
7801-13 B6
7801-14 A11
7801-2 C7
7801-3 B11
7801-7 F6
7900 C2
7901 D2
F900 B2
F901 A4
F902 A7
F903 C5
F904 C8
F905 D11
F906 D11
F907 D11
F908 E9
F909 E10
F910 G10
I900 C2
I901 E2
I902 E2
I903 G7
I904 F5

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 TXBC+
BCn|DEGRN9 AF13 TXBC-
B3p|DEGRN6 AF11 TXB3+
B3n|DEGRN7 AF12 TXB3-
B2p|DEBLU3 AF14 TXB2+
B2n|DEBLU4 AE14 TXB2-
B1p|DEBLU6 AF15 TXB1+
B1n|DEBLU7 AE15 TXB1-
B0p|DEBLU8 AF16 TXB0+
B0n|DEBLU9 AE16 TXB0-

LVDS

B20 TO EPLD

B7 TO SCALER

BU_LHT_ADJ1 — 3A02 1K0

RESERVED

IA07 — 4A02 RES — IA05 — BACKLIGHT_DIM — B20 FROM EPLD

RES +5VSWI

3A03 RES

7A01 SI2301DS-T1

3A05 RES

IA06 — 3A06 10K — IA00 — BACKLIGHT_CTRL — B16 TO TOP CONNECTORS

2A03 1u0

3A04 1K0

4A03

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

B21 TO EPLD

SDA_DMA_BUS1_DISP — 3A00 68R — IA08 — 6 SDA1 — SDA0 3 — SDA_IO

SCL_DMA_BUS1_DISP — 3A01 68R — IA09 — 7 SCL1 — SCL0 2 — SCL_IO

1 NC — NC GND — EN 5 — 4A04 (PDP) — BUF_ENABLE

4

2A01 100p — 2A02 100p

4A00 RES

4A01 RES

FOR UFD ONLY

+3V3STBY

2A13 100n — 3A13 10K

3A11 4K7

+5V

3A14 4K7

7A03 BC847BW

B2 FROM HERCULES — SC_STANDBY — 3A10 10K — IA03 — 2A12 10n — 7A02 BC847BW

6A01 BZX384-C3V9

STANDBY

4A05

4A06

2A00 D3
2A01 E2
2A02 E2
2A03 C7
2A12 F6
2A13 D8
3A00 E2
3A01 E2
3A02 C5
3A03 B6
3A04 C6
3A05 C6
3A06 C7
3A07 E2
3A08 E2
3A10 F6
3A11 E7
3A13 D8
3A14 E9
4A00 F3
4A01 F3
4A02 B6
4A03 D6
4A04 E4
4A05 F6
4A06 F8
5A00 E3
6A01 F8
7801-8 A2
7A00 E3
7A01 C6
7A02 E6
7A03 E8
IA00 C7
IA03 F6
IA05 B8
IA06 C6
IA07 B6
IA08 E2
IA09 E2

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SSB: SDRAM

B10 SDRAM

2B01 A1
2B02 A1
2B03 A1
2B04 A2
2B05 A2
2B06 A2
2B07 A2
2B08 A3
2B09 A3
2B10 A3
2B11 A4
2B12 A4
2B13 A4
2B14 A4
2B15 A5
2B16 A5
2B17 B4
2B18 B4
3B01 B3
3B02 B3
3B03 C2
7B01 B3
FB01 B3
IB02 C2
IB03 C2

+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

+2V5_DDR
3B01 10K 1%
FSVREF
FB01
3B02 10K 1%
2B18 16V 22u
2B17 100n

7B01 K4D263238F-UC50
SDRAM 1M X 32 X 4

VREF, VDD, VDDQ, VSS, VSSQ

FSRAS, FSCAS, FSWE
FSCLK+, FSCLK-, FSCKE
3B03 150R 1%
IB03, IB02
FSDQM(0..3)
FSBKSEL(0..1)
FSADDR(0..11)
RFU, MCL, NC, DQS

FSDATA(0..31)
ESDQS

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SSB: Flash / Control

B11 FLASH / CONTROL

B11

B 7 TO SCALER

+3V3_IO

5C00

FC00

2C00 100n 2C01 10u 16V

7C00 M29W040B-55K1

ROM 512Kx8 [FLASH]

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

A 0 512K-1

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

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

DQ 0..7

B 7 TO SCALER

OCMADDR(0:19)

+3V3_IO

3C04-1 3C04-2 3C04-3 3C04-4 10K 3C05

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

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

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

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

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

3C11 RES
3C12 RES
3C13 RES
3C14 RES
3C15 RES

+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 +3V3SW

3C00 10K

2C02 100n

3V2

7C01 M24C32-WMN6

Φ (4Kx8) EEPROM

NVM_WP_SCALER 0V FC01 WC
SCL_IO 3V2 FC02 SCL
SDA_IO 3V2 FC03 SDA

ADR 0 1 2 3

+3V3SW

3V2

2C03 100n

3C02 1K0

7C02 PST596J

1C00 SKQR

For Software Development only - (RES)

FC04 0V

MR VCC SUB GND VOUT

FC05 3V2

#RESET

3C01 10K

3C03 RES

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

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

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SSB: HDMI

B12 HDMI

B12

B 7 FROM SCALER

SCL_IO
SDA_IO

7D00 M24C02-WMN6 EEPROM (256x8)

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

FD00

+3V3SW

5D00 5D01 5D02 5D03 5D04

FD07 FD08 FD09 FD10 FD11

2D07 22u 6.3V 2D12 22u 6.3V 2D17 10u 2D20 10u 2D23 22u 6.3V 2D27 22u 6.3V

2D08 100n 2D13 100n 2D18 100n 2D21 100n 2D24 100n 2D28 100n

2D09 1n0 2D14 1n0 2D19 1n0 2D22 1n0 2D25 1n0 2D29 1n0

2D10 1n0 2D15 1n0 2D26 1n0 2D30 1n0

2D11 1n0 2D16 1n0 2D31 1n0

PLLIN

COMP

B 22 FROM DIGITAL-IO (CINCH ONLY)

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

2D01 10n 2D02 1n0

FD04 ID01

B 11 FROM FLASH/CONTROL

#RESET

3D05 100R 3D06 100R 3D07 4K7 3D08 4K7 3D09 33R

7D01 BSN20 7D02 BSN20

ID02 ID03

3D10 390R

7D03 SII9993CTG100 HDMI PANELINK RECEIVER

AVCC VCC PVCC1 PVCC2 DACVCCR DACVCCG DACVCCB OVCC1

RESET MCLKIN MCLKOUT CSCL CSDA DSCL DSDA

RXC- RXC+ RX0- RX0+ RX1- RX1+ RX2- RX2+

3D11 100R ID04 ID05 ID06 ID07

2D03 10u 2D04 10n 2D05 47n 2D06 10u ID22 3D12 3K9

RSET COMP PLLOUT EXT-RES

B 13 TO MUX-SYNC INTF

H_HDMI FD05
V_HDMI FD06

HSYNC VSYNC

NC RSVDL RSVDO

ANRPR ANGY ANBPB SPDIF SDO WS SCK DE ODCK INT

29 SPDIF (NC) FD12

AGND GND PGND DACGNDR DACGNDG DACGNDB OGND GND_HS

FD17

3D21-4 533R 3D21-3 633R 3D21-22 733R 3D21-11 833R 3D22 33R 3D23 33R

FD15

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

3D15-11 3D15-22 3D15-33 3D15-44 3D16-11 3D16-22 3D16-33 3D16-44 3D17-11 3D17-22 3D17-33 3D17-44 3D18-11 3D18-22 3D18-33 3D18-44 8 33R 7 33R 6 33R 5 33R

B 7 TO SCALER

AUDIO DAC

7D04 UDA1334BT/N2

VDDA VDDD

BCK WS DATAI SYSCLK MUTE DEEM PCS VOL

DIGITAL INTERFACE
DE-EMPHASIS
INTERPOLATION FILTER
NOISE SHIFTER

VSSA VSSD VREF-DAC VOR

SEOR0 SEOR1

3D19 1R0 3D20 1R0 2D32 47u 6.3V 2D33 100n 2D34 47u 6.3V 2D35 100n FD13 FD14

2D36 1u0 2D38 47u 6.3V 2D39 100n 2D40 1u0 10V 2D41 10n

3D24 220R 3D25 100R 3D34 100K 3D26 220R 3D27 100R 3D35 100K

ID08 ID09 ID10 ID11 ID12 ID13 ID14 ID15

B 22 TO DIGITAL-IO (CINCH ONLY)

AV3_LEFT
AV3_HDMI-AUDIO_SEL
AV3_RIGHT

ID17 FD16 ID16

4D00 "4D01" FOR SET W/O AV3

7D05 HEF4053B

VDD MDX VEE_VSS

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

2D44 1u0 2D45 1u0

ID18 ID19 ID20 ID21

AudioIN2R AudioIN2L

B 2 TO HERCULES

HDMI_VDV HDMI_VCLK

B 7 FROM SCALER

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2D00 B3 FD11 B7
2D01 D2 FD12 G9
2D02 D3 FD13 E11
2D03 F4 FD14 E11
2D04 F4 FD15 F10
2D05 G4 FD16 E13
2D06 G4 FD17 H7
2D07 B5 ID00 C2
2D08 B5 ID01 D3
2D09 B5 ID02 D4
2D10 B5 ID03 D4
2D11 B5 ID04 F5
2D12 B5 ID05 F5
2D13 B5 ID06 F5
2D14 B5 ID07 G5
2D15 B5 ID08 G10
2D16 B5 ID09 G11
2D17 B6 ID10 G12
2D18 B6 ID11 G12
2D19 B6 ID12 H12
2D20 B6 ID13 H12
2D21 B6 ID14 I12
2D22 B6 ID15 G13
2D23 B7 ID16 F13
2D24 B7 ID17 E13
2D25 B7 ID18 G14
2D26 B7 ID19 G14
2D27 B8 ID20 G14
2D28 B8 ID21 G14
2D29 B8 ID22 G4
2D30 B8
2D31 C8
2D32 E11
2D33 E11
2D34 E12
2D35 E12
2D36 G11
2D37 H11
2D38 H12
2D39 H12
2D40 G12
2D41 H13
2D44 G14
2D45 G14
3D00 B2
3D01 B2
3D02 B3
3D03 C2
3D04 C2
3D05 D3
3D06 D4
3D07 D4
3D08 D4
3D09 D5
3D10 C5
3D11 F4
3D12 G4
3D15-1 C11
3D15-2 C11
3D15-3 C11
3D15-4 C11
3D16-1 C11
3D16-2 C11
3D16-3 C11
3D16-4 D11
3D17-1 D11
3D17-2 D11
3D17-3 D11
3D17-4 D11
3D18-1 D11
3D18-2 D11
3D18-3 E11
3D18-4 E11
3D19 E11
3D20 E12
3D21-1 G9
3D21-2 G9
3D21-3 G9
3D21-4 F9
3D22 G9
3D23 G9
3D24 H11
3D25 H11
3D26 H12
3D27 H12
3D30 G14
3D31 G14
3D32 G14
3D33 G14
3D34 H11
3D35 H12
4D00 F13
4D01 F13
5D00 A5
5D01 A6
5D02 A6
5D03 A6
5D04 A7
7D00 B1
7D01 D3
7D02 D4
7D03 C5
7D04 F11
7D05 F13
FD00 B2
FD01 C2
FD02 C2
FD03 D2
FD04 D2
FD05 G2
FD06 G2
FD07 B5
FD08 B6
FD09 B6
FD10 B6

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

+5VSWI

5E02 IE08 2E15 100n

5V4

7E02 ADG781BCP
VDD Φ SPST SWITCH
NC NC GND_HS_GND

B7 TO SCALER

IE17 IE29 IE30

2E21 4u7 IE05
2E22 4u7 IE06
2E23 4u7 IE07
2E37 15p
2E38 15p
2E39 15p

PC_HD_SEL 3V2
FE08 3V3

B8 TO SCALER

(SCART) (CINCH)
B15/B23 FROM ANALOG-IO

SC1_CVI_DMMI_R_Pr_IN 2E00 4u7 IE13
SC1_CVI_DMMI_G_Y_IN 2E01 4u7 IE14
SC1_CVI_DMMI_B_Pb_IN 2E02 4u7 IE15

3E09 47K
3E10 47K
3E11 47K

RINA|Pr 2E33 4u7 IE16
GINA|YINA 2E34 4u7
BINA|Pb 2E35 4u7 IE18

FROM DIGITAL-IO
B14/B22 (SCART) (CINCH)

3E50 47K
3E51 47K
3E52 47K
3E06 47K
3E07 47K
3E08 47K
3E03 47K
3E04 47K
3E05 47K

+5VSWI

5E00 IE00 2E03 100n

7E00 ADG733BRU
VDD Φ EN A0 A1 A2
S1A S1B S2A S2B S3A S3B D1 D2 D3 VSS GND

3E12 10K
RGBICVI_HDA_SEL FE03

B7 FROM SCALER
SD_HD_SEL 3V2

B2 TO HERCULES

4E03 RES

0V I_PC_HD_SEL

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
NC1 NC2 NC3
ROUTIYOUT GOUTIUOUT BOUTIVOUT

5E01 FE06
2E16 100n
2E17 100n
2E18 100n
2E19 100n
2E20 47u 6.3V

R-PR-ADC
G-Y-ADC
B-PB-ADC

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

SC1_R_CVI_Pr_IN IE19
SC1_G_CVI_Y_IN
SC1_B_CVI_Pb_IN IE21

3E19 56R
3E20 56R
3E21 56R
IE25 IE26 IE23
2E07 33p
2E09 33p
2E11 33p
2E08 2E10 2E12 4u7

B8 TO SCALER
HD_FILTER 0V
IE03 3E22 100K
IE04 FE05
2E13 1u0
2E14 33p
3E23 820R
FE07

4E12 RES
4E13 RES
4E14 RES

+3V3SW

5E03 2E31 100n

7E03 CD74HC4053M96
VDD MDX G4

4E10 RES

B3 SYNC INTERFACE

Hsync_SDTV 3E31 100R IE09
H_PC 3E32 100R IE10
Vsync_SDTV 3E33 100R IE11
V_PC 3E34 100R IE12

BZX384-C2V7 6E00 6E01 6E02 6E03

FROM DIGITAL-IO
B14/B22 (SCART) (CINCH)

4X1 4X2
VEE VSS
4E11 RES

SD_HD_SEL 3V2

B18 FROM ADC

COL_Di(8) 3E37 22R
COL_Di(8)_INV
COL_Do(8)
3E49 22R
COL_Do(8)_INV IE28

B19

PC_HD_SEL

B7 TO SCALER

I_PC_HD_SEL

+3V3SW

2E32 100n

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

+3V3SW

2E36 100n

7E05-1 74LVC14APW
7E05-2 74LVC14APW
7E05-3 74LVC14APW
7E05-4 74LVC14APW
7E05-5 74LVC14APW
7E05-6 74LVC14APW

3E44 100R
3E45 100R
3E43 100R
3E46 (NC)
IE31 HDMI_VVS
HDMI_VHS

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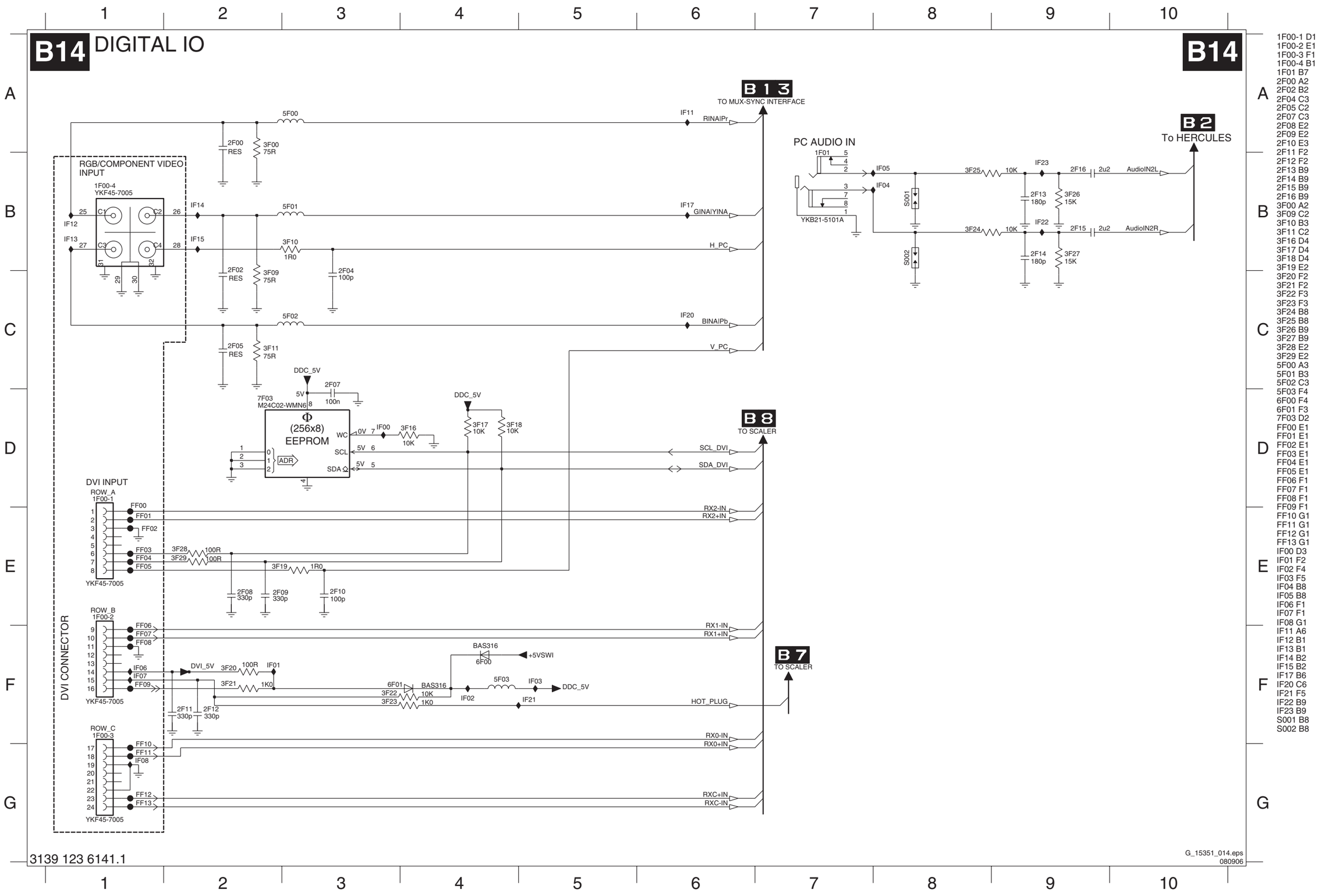
2E00 C3	6E01 F3
2E01 C3	6E02 G3
2E02 C3	6E03 G3
2E03 B5	7E00 C5
2E04 B7	7E01 B9
2E05 B7	7E02 A11
2E06 B7	7E03 E4
2E07 C7	7E04-1 E6
2E08 C8	7E04-2 E7
2E09 D7	7E04-3 F6
2E10 C8	7E04-4 F7
2E11 D7	7E04-5 G5
2E12 D8	7E04-6 G7
2E13 D7	7E05-1 E10
2E14 D8	7E05-2 E11
2E15 A11	7E05-3 F10
2E16 B9	7E05-4 F11
2E17 B9	7E05-5 G10
2E18 B9	7E05-6 G11
2E19 B9	FE00 B2
2E20 B9	FE01 B2
2E21 B10	FE02 B2
2E22 B10	FE03 C6
2E23 B10	FE04 C8
2E24 C11	FE05 D8
2E25 C11	FE06 B9
2E26 C11	FE07 E9
2E27 D11	FE08 B11
2E28 D11	FE09 C10
2E29 D11	FE10 C10
2E30 D11	FE11 C10
2E31 E4	FE12 D10
2E32 E7	FE13 D10
2E33 C3	IE00 B5
2E34 C3	IE01 B8
2E35 D3	IE02 C8
2E36 E11	IE03 D7
2E37 B10	IE04 D8
2E38 C10	IE05 B10
2E39 C10	IE06 B10
3E00 A3	IE07 B10
3E01 A3	IE08 A11
3E02 A3	IE09 F3
3E06 C4	IE10 F3
3E07 C4	IE11 F3
3E08 C4	IE12 F3
3E09 C4	IE13 C3
3E10 C4	IE14 C3
3E11 C4	IE15 C3
3E12 C5	IE16 C3
3E13 B6	IE17 A10
3E14 B6	IE18 D3
3E15 B6	IE19 C6
3E16 B7	IE20 C8
3E17 B7	IE21 D6
3E18 B7	IE22 C8
3E19 C7	IE23 D8
3E20 C7	IE24 F7
3E21 D7	IE25 C7
3E22 D7	IE26 C7
3E23 D8	IE27 F7
3E24 C10	IE28 G7
3E25 C10	IE29 A10
3E26 C10	IE30 A10
3E27 D10	IE31 F12
3E28 D10	IE32 C11
3E29 D10	IE33 C11
3E30 D10	IE34 D11
3E31 F2	IE35 B8
3E32 F2	IE36 B8
3E33 F2	IE37 B8
3E34 F2	
3E35 F5	
3E36 F5	
3E37 G5	
3E38 F7	
3E39 F7	
3E41 F9	
3E42 F9	
3E43 G9	
3E44 F11	
3E45 F11	
3E46 G11	
3E49 G6	
3E50 C3	
3E51 C3	
3E52 C4	
3E53 D3	
3E54 D3	
3E55 D4	
4E03 C7	
4E10 E3	
4E11 G4	
4E12 D5	
4E13 D5	
4E14 D5	
5E00 B5	
5E01 B8	
5E02 A10	
5E03 E4	
6E00 F3	

SSB: Digital I/O



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1F00-1 D1
1F00-2 E1
1F00-3 F1
1F00-4 B1
1F01 B7
2F00 A2
2F02 B2
2F04 C3
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 C2
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 E1
FF01 E1
FF02 E1
FF03 E1
FF04 E1
FF05 E1
FF06 F1
FF07 F1
FF08 F1
FF09 F1
FF10 G1
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: SCART Analogue I/O

B15 SCART ANALOGUE IO **B15**

SCART 1

SCART 2

RESERVED FOR DMMI

RESERVED FOR DMMI

RESERVED FOR DMMI

DMMI CONNECTOR

TO HERCULES B2

TO MUX-SYNC INTF B13

FROM SIDE CONNECTOR B17

FROM SCALER B7

1G01-1 B2	3S03 J9	IG67 F12	
1G01-2 E2	4G00 B3	IG69 F12	
1G02-1 G2	4G01 B3	IG73 I9	
1G02-2 J2	4G05 H4	IG75 I9	
1G03 G16	4G06 H4	IG76 J9	
2G01 A3	4G09 C11	IG78 J9	
2G02 B3	4G10 C11	IG79 K10	
2G03 B3	4G11 D12	IG80 I10	
2G04 B3	4G12 D12	IS011 B3	
2G05 A4	4G13 D12	IS012 B3	
2G06 B4	4G14 E10	IS013 B3	
2G07 A5	4G15 F10	IS014 C3	
2G08 B5	4G16 G12	IS015 C2	
2G09 B4	4G17 G12	IS016 C2	
2G10 C4	4G18 J6	IS017 C3	
2G11 B5	4G19 H10	IS018 D3	
2G12 C5	4G20 K9	IS019 D3	
2G16 E5	4G21 I10	IS020 E3	
2G17 E5	4G22 L10	IS021 E3	
2G18 G5	4G26 E5	IS022 F3	
2G19 G5	5G00 E5	IS023 F3	
2G20 G5	5G01 D10	IS024 G3	
2G21 G5	5G02 J11	IS025 H3	
2G22 H5	6G00 F3	IS026 H3	
2G23 H5	6G01 K3	IS027 H3	
2G24 H5	6G02 B13	IS028 H2	
2G25 H5	6G03 C3	IS029 H2	
2G26 I5	6G04 C3	IS030 H2	
2G28 K4	6G05 B2	IS031 H2	
2G29 B11	6G06 B2	IS032 I2	
2G30 B12	6G07 G2	IS033 I3	
2G31 C11	6G08 G3	IS034 I3	
2G32 C11	6G09 G2	IS035 J3	
2G33 C13	6G10 G3	IS036 K3	
2G34 E11	7G03 E4		
2G35 E12	7G05 J4		
2G36 F10	7G07 B12		
2G37 F10	7G08 B14		
2G38 F12	7G09 E12		
2G39 E14	7G10 J11		
2G40 F14	FG00 A3		
2G41 F14	FG01 B3		
2G43 J14	FG02 B2		
2G45 J15	FG03 B3		
2G46 J15	FG04 B3		
2G47 J11	FG05 C3		
2G48 G4	FG06 C3		
2G49 G4	FG07 D3		
2G50 H4	FG08 E3		
2G51 H4	FG09 E3		
2G52 F3	FG10 D2		
2G53 K3	FG11 E3		
2G55 I9	FG12 F3		
2G56 J9	FG13 F7		
2G63 B11	FG14 G3		
2G64 C10	FG15 G3		
2G65 K9	FG16 G2		
2G66 I10	FG17 H3		
3G00 A3	FG18 H3		
3G01 B4	FG19 H2		
3G02 A5	FG20 I3		
3G03 B5	FG21 I3		
3G04 B4	FG22 J3		
3G05 C4	FG23 K3		
3G06 B5	FG24 C2		
3G07 C5	FG25 C2		
3G08 J5	FG26 H2		
3G09 I4	FG27 H2		
3G12 C3	FG28 H2		
3G13 D3	FG30 I2		
3G14 D3	FG32 G15		
3G15 C3	FG33 G15		
3G16 C3	FG34 G15		
3G17 D3	FG35 G15		
3G26 E3	FG36 H15		
3G27 E4	FG37 H15		
3G28 E4	FG38 H15		
3G29 E4	FG39 H15		
3G30 E3	FG40 H16		
3G31 F4	FG41 H15		
3G32 F4	FG42 H15		
3G33 F4	FG43 H15		
3G34 E5	FG44 H15		
3G37 G4	FG45 I15		
3G38 G4	FG47 I15		
3G39 G5	FG48 I15		
3G40 G5	FG49 I15		
3G41 H4	FG50 I15		
3G42 H4	FG51 I15		
3G43 H5	FG53 I15		
3G44 H5	FG54 I15		
3G45 I3	FG56 I15		
3G46 I4	IG00 A4		
3G47 I6	IG01 B4		
3G48 I6	IG02 A6		
3G51 I4	IG03 B6		
3G52 I5	IG04 B4		
3G53 J4	IG05 C4		
3G54 J4	IG06 C7		
3G55 J5	IG07 C7		
3G56 J5	IG08 D7		
3G57 K4	IG09 E7		
3G58 K4	IG10 E7		
3G59 J5	IG11 E4		
3G60 K5	IG12 E5		
3G63 B10	IG13 E7		
3G64 C10	IG14 G5		
3G65 C11	IG15 G5		
3G66 C10	IG16 G6		
3G67 C10	IG17 G6		
3G68 C11	IG18 H5		
3G69 B13	IG19 H5		
3G70 C13	IG20 H6		
3G71 C14	IG21 H6		
3G72 E11	IG23 I6		
3G73 E11	IG24 J4		
3G74 E11	IG25 J5		
3G75 E10	IG26 J6		
3G76 F10	IG27 K6		
3G77 F11	IG28 D11		
3G78 F11	IG29 F11		
3G79 E13	IG30 F13		
3G80 E13	IG40 I5		
3G81 E13	IG42 I6		
3G82 E14	IG43 K4		
3G83 E13	IG46 J11		
3G84 F13	IG47 K10		
3G85 F13	IG49 B8		
3G86 F13	IG50 B12		
3G87 F14	IG52 C12		
3G88 H12	IG53 C12		
3G89 F13	IG54 C12		
3G90 H12	IG55 C12		
3G91 H13	IG56 D11		
3G92 K10	IG57 B13		
3G93 K10	IG58 B14		
3G94 I10	IG59 D15		
3G95 I10	IG60 E11		
3G96 I9	IG61 F11		
3G99 I9	IG62 F11		
3S00 J9	IG63 F11		
3S01 H10	IG64 E12		

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SSB: Top Connectors

B16 TOP CONNECTORS

FOR UFD ONLY

UFD CONTROL

(1M03) 1J00

IJ01 POR (NC)
IJ02 LAMP_ON_OFF_1
IJ03
IJ04
TEMP_SENSOR (NC)
IJ05 STANDBY_1
IJ06 NC
IJ07 POWER_UP_OK_1

5J05 RES — FAN_SPEED
PROTECT_AUD
3J06 RES — POWER_UP_OK — IJ12

4J02 RES
2J16 RES
2J33 RES
2J20 RES
2J34 RES

FROM SCALER INTERFACE B6
FROM SCALER B8
FROM SCALER B7

PROTECT_AUD

FROM AUDIO B5

AUDIO-L — 5J01 — FJ10
AUDIO-R — 5J02 — FJ12
FJ11
AUDIO-SW (NC)
3V3 SOUND_ENABLE_1
3V3 POR_AUDIO
FJ13
FJ14

(1M52) 1J04
B9B-PH-K-S(LF)

2J26 100p 2J27 100p 2J28 100p 2J29 100p 2J36 1n0

TO/FROM 1002 OF CLASS-D AUDIO AMPLIFIER C

UFD SUPPLY

(1M46) 1J01

FJ00
FJ01 (NC)
FJ02
5V(NC)
FJ03
FJ04
+33V_TUN(NC)
FJ05 NC

1J07 +12V_UFD 3A T
1J08 +5V_UFD
4J01
2J31 1n0

5J04 — +5V

TO DC-DC CONVERTER B6

FROM EPLD B20

B_LT_PWM FJ15
G_LT_PWM FJ16
R_LT_PWM FJ17
B_RT_PWM FJ18
G_RT_PWM FJ19
R_RT_PWM FJ20

1J05
B7B-PH-K-S(LF)
AMBIENT LIGHT (TOP)

2J04 2J05 2J06 2J07 2J08 2J09 100p

B_LB_PWM FJ21
G_LB_PWM FJ22
R_LB_PWM FJ23
B_RB_PWM FJ24
G_RB_PWM FJ25
R_RB_PWM FJ26

1J06
B7B-PH-K-S(LF)
AMBIENT LIGHT (BOTTOM)

2J10 2J11 2J12 2J13 2J14 2J15 100p

RESERVED

TO/FROM PSU (SUPPLY FOR LCD)

1J02
B12P-PH-K-S(LF)

VP
GND_AUDIO
FJ06
3V2 +3V3STBY
FJ07
IJ08
IJ09
IJ10
IJ11
5J03 POWER_DOWN
+12VUNREG 11V6

3J05 68R STANDBY 3V1
3J03 68R BACKLIGHT_CTRL
3J04 68R LAMP_ON_OFF 3V2
IJ13

FROM SCALER INTERFACE B9
FROM SCALER B8

2J30 1n0
2J02 1n0
2J35 1n0
2J18 100p
2J19 100p
2J17 1n0
2J22 100p
2J23 100p
2J21 100p

TO/FROM 1003 OF CLASS-D AUDIO AMP (+18V / +24V) C

1J03
B3B-PH-K-S(LF)
FJ08 VP
FJ09 GND_AUDIO
2J03 1n0
GND_AUDIO

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1J00 A1	FJ25 E7
1J01 C1	FJ26 E7
1J02 D1	IJ01 B1
1J03 F1	IJ02 B1
1J04 B8	IJ03 B1
1J05 C8	IJ04 B1
1J06 D8	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 C3	
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 F2	
FJ09 F2	
FJ10 B7	
FJ11 B8	
FJ12 B7	
FJ13 B7	
FJ14 B7	
FJ15 C7	
FJ16 C7	
FJ17 C7	
FJ18 D7	
FJ19 D7	
FJ20 D7	
FJ21 E7	
FJ22 E7	
FJ23 E7	
FJ24 E7	

SSB: Side Connectors

B17 SIDE CONNECTORS

B17

FOR DISC/ ARCH CABINET
RESERVED
1K03
+3V3STBY_1
4K06 +3V3STBY_1
4K07 RES
+5VSW_1
PC-TV-LED_1
LED_SEL_1
LIGHT_SENSOR_1
IR_1
KEYBOARD
ITV_IR_SW_RESET

B2
B3 B6
+3V3STBY
LED_SEL
PC-TV-LED
IR
LIGHT_SENSOR

4K01 RES
4K03 RES
3K11 68R
5K00 1u0
5K02 1u0
3K12 68R
3K13 68R
IK16
4K04 IK00 PC-TV-LED_1
4K05 IK01 LED_SEL_1
IK02 IR_1
IK03 LIGHT_SENSOR_1
+3V3STBY_1
2K01 1n0
2K00 1n0
2K21 100p
2K22 100p
2K23 100p
2K24 100p
2K25 100p
2K26 100p
2K27 100p
2K28 100p

J
TO/FROM 1540 OF IR/ LED
1K00 (1M21)
B6B-PH-K
FK11

B15/B23

3K00 100R
2K02 10p
2K03 10p
FRONT_Y_CVBS_IN
3K01 100R
2K04 10p
2K05 10p
FRONT_C_IN
3K02 10K
IK17
2K08 2u2
2K06 100p
2K07 100p
3K03 15K
FRONT_L_IN
5K01 1u0
+5VSW
2K19 1n0
2K20 1n0
3K05 10K
IK18
2K12 2u2
2K10 100p
2K11 100p
3K06 15K
FRONT_R_IN
* 3K07 39R
2K13 100p
2K14 100p
HP_LOUT
3K08 68R
2K15 100p
HP_DET_R_DC
* 3K09 39R
2K16 100p
2K17 100p
HP_ROUT

*	UFD
2K13	10p
2K14	10p
2K16	10p
2K17	10p
3K07	10R
3K09	10R

B2
B23 / B15 / B5
KEYBOARD

TO/FROM 1304 OF SIDE I/O
RES 1K04
1K01 (1M06)
FK00 FRONT_Y_CVBS_IN_1
FK01 FRONT_C_IN_1
FK02 FRONT_L_IN_1
FK03 +5VSW_1 3V3
FK04 FRONT_R_IN_1
FK10
FK05 HP_LOUT_1
FK06 HP_DET_R_DC_1 3V3
FK07 HP_ROUT_1
4K02 RES

E
TOP/SIDE KEYBOARD
1K02 (1M01)
FK08
FK09
2K18 100p
B3B-PH-K-S(LF)

1K00 A9
1K01 D1
1K02 E9
1K03 A1
1K04 D1
2K00 B7
2K01 B6
2K02 C3
2K03 C4
2K04 D3
2K05 D4
2K06 D3
2K07 D4
2K08 D4
2K10 E3
2K11 E4
2K12 E4
2K13 F3
2K14 F4
2K15 F3
2K16 F3
2K17 F4
2K18 E8
2K19 E3
2K20 E3
2K21 B6
2K22 B7
2K23 B7
2K24 B7
2K25 B7
2K26 B8
2K27 B8
2K28 B8
3K00 C3
3K01 C3
3K02 D3
3K03 D4
3K05 E3
3K06 E4
3K07 E3
3K08 F3
3K09 F3
3K11 A7
3K12 A7
3K13 B7
4K01 A8
4K02 F2
4K03 A8
4K04 A8
4K05 A8
4K06 B2
4K07 B2
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 B9
IK00 A8
IK01 A8
IK02 A8
IK03 B8
IK16 A7
IK17 D4
IK18 E4

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SSB: ADC

B18 ADC

B18

7L05 LD1117DT33
+5VSWIA
IN OUT COM
IL16 3V3 +3V3SWB
2L30 10u 16V

B2 TO HERCULES

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

+3V3SWB
5L00
IL17

+3V3SWB +3V3SWB
5L01 5L02
IL18
IL19

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

+5VSWIA
4L04 RES 4L05
3L07 RES
CVBS_COMB 4L03 RES IL05
INTF_Y_OUT 4L02 3L06 0R
7L02 BC847BW
3L09 RES 3L11 150R
3L10 330R
2L38 RES
5L03 10u
2L37 68p
5L04 0H
3L38 0R
2L39 82p
3L08 RES
+5VSWIA
3L39 RES
7L08 RES
IL07

7L04 AD9985KSTZ 9883(MSTAR)
VD ΦVDD PVD
ANALOG INTERFACE FOR FLAT PANEL DISPLAY

2L13 47n IL01 54 RAIN
2L26 220n IL02 48 GAIN
3L34 0R IL08
IL03 43 BAIN

B3 FROM SYNC INTERFACE
Hsync_SDTV
Vsync_SDTV
3L21 2K2 30 HSYNC
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

+5VSWIA
3L13 RES
5V4
INTF_U_OUT IL06 3L12 1K0 1V5 7L03 BC847BW
2L36 RES
3L15 RES
3L16 0R
0V9
3L35 220R
3L17 150R
IL09 2L17 47n
2L31 100u 16V 2L32 100u 16V

B2 FROM HERCULES
+3V3SWB +3V3SWB
3L36 3K3 3L37 3K3
SDA
SCL
3L19 150R
3L20 150R
7L06 BSN20 7L07 BSN20
+3V3SWB

CLAMP_ADC

GND

B13
COL_Di(8)

B19 TO COLUMBUS
COL_Di(1:7)
COL_Di(1)
COL_Di(2)
COL_Di(3)
COL_Di(4)
COL_Di(5)
COL_Di(6)
COL_Di(7)

RED
77 IL10 3L25-1 22R
76 IL11 3L25-2 22R
75 IL12 3L25-3 22R
74 3L25-4 22R
73 3L26-1 22R
72 3L26-2 22R
71 3L26-3 22R
70

COL_YA(1:8)
COL_YA(1)
COL_YA(2)
COL_YA(3)
COL_YA(4)
COL_YA(5)
COL_YA(6)
COL_YA(7)
COL_YA(8)

GREEN
9 IL13 3L27-4 22R
8 IL14 3L27-3 22R
7 IL15 3L27-2 22R
6 3L27-1 22R
5 3L28-4 22R
4 3L28-3 22R
3 3L28-2 22R
2 3L28-1 22R

BLUE
19 18 17 16 15 14 13 12

DATACK 67
HSOUT 66 3L30 22R
VSOUT 64 3L31 22R
SOGOUT 65 3L32 2K2

B7 TO SCALER
COL_CLKASA
COL_HREF
COL_VA
SYNC INTF
B3

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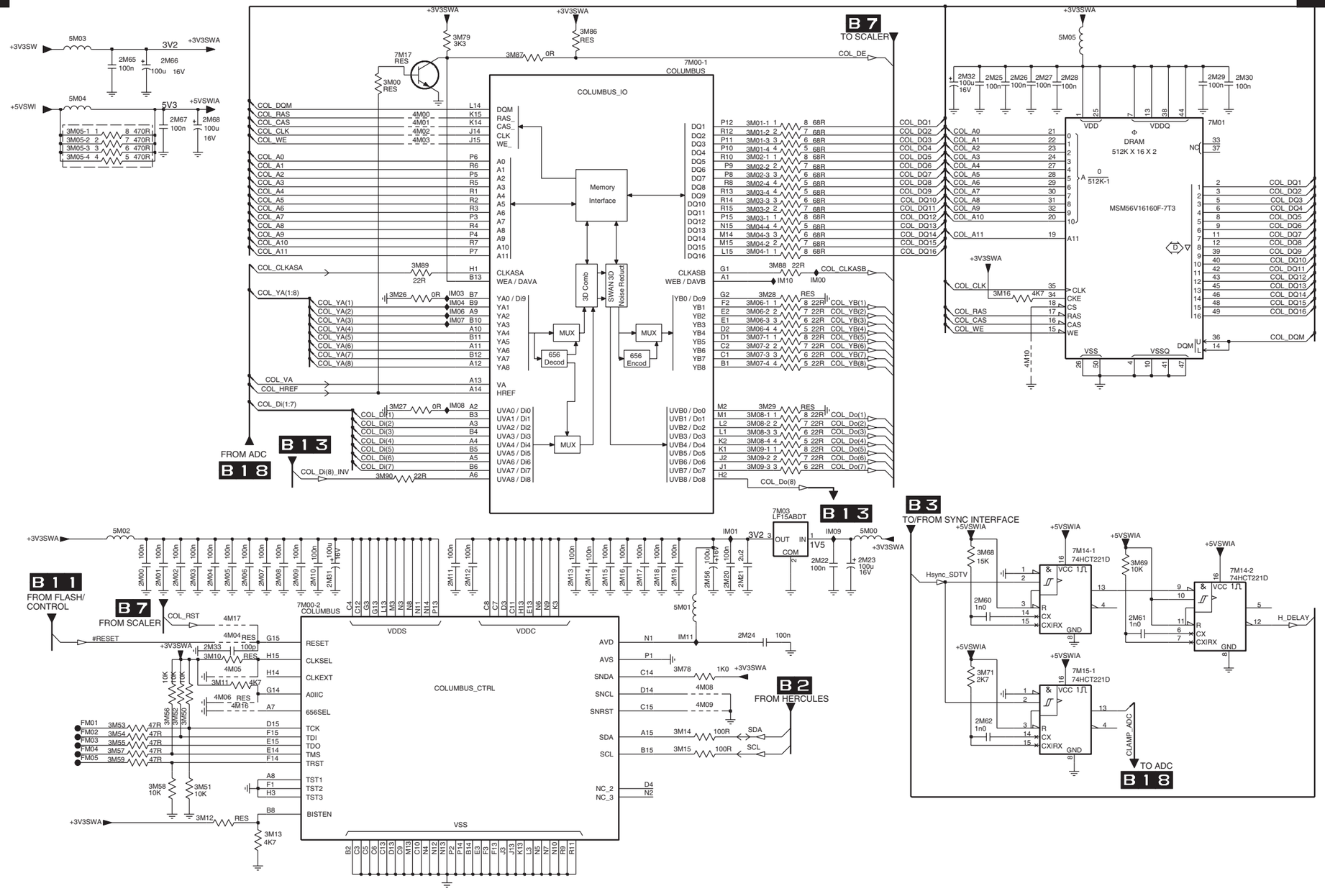
2L02 A7 3L36 E2
2L03 A7 3L37 E3
2L04 A7 3L38 C3
2L05 A8 3L39 C4
2L06 A8 4L00 D3
2L07 B7 4L01 D3
2L08 B7 4L02 C1
2L09 B7 4L03 C1
2L10 B8 4L04 B3
2L11 B8 4L05 B3
2L13 C4 5L00 B4
2L15 D4 5L01 A5
2L17 E3 5L02 A6
2L18 E4 5L03 C3
2L19 E4 5L04 C3
2L20 D4 7L01 B2
2L21 D4 7L02 C2
2L22 B5 7L03 E2
2L23 B5 7L04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

SSB: Columbus

B19 COLUMBUS



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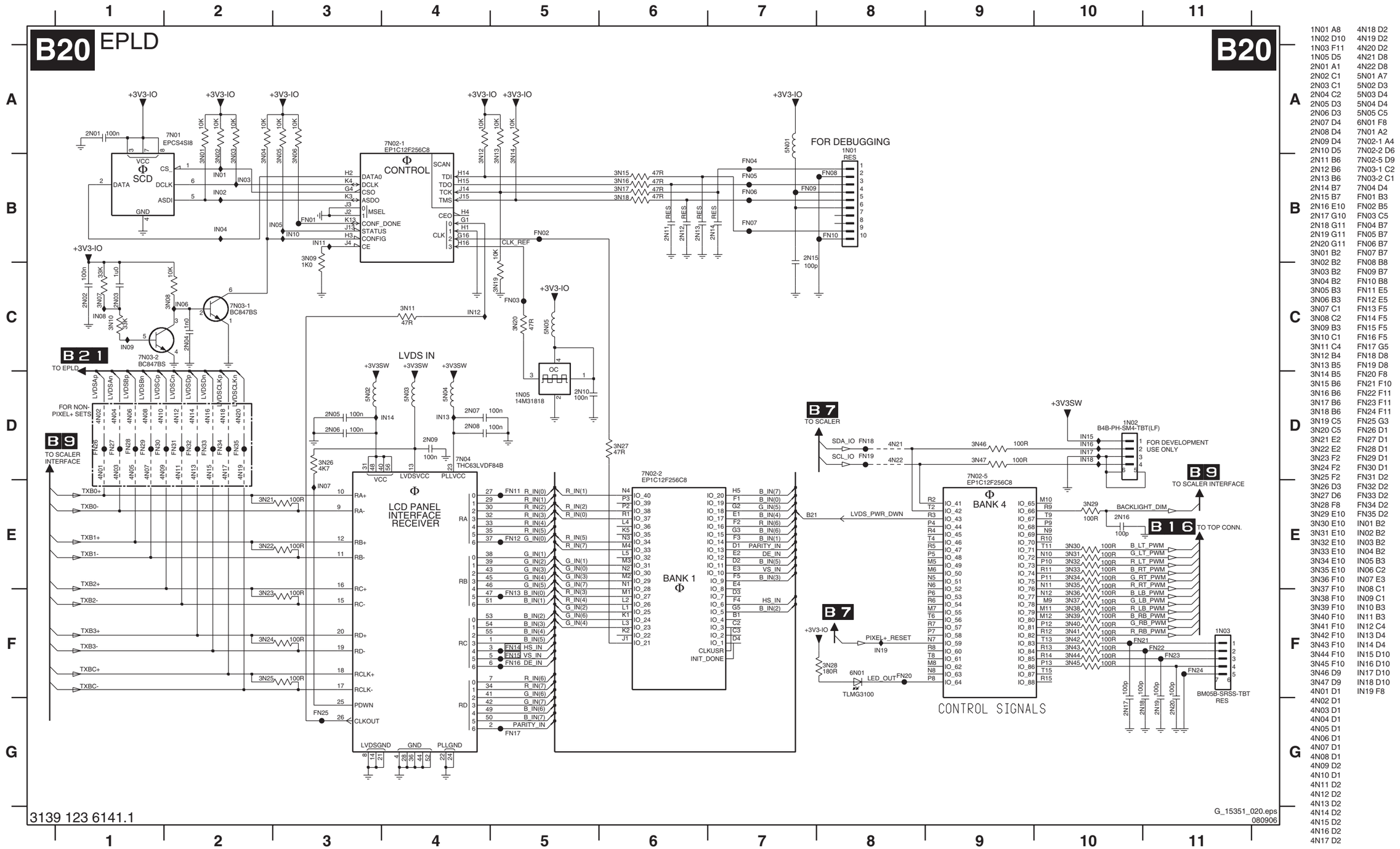
2M00 E2
2M01 E2
2M02 E3
2M03 E3
2M04 E3
2M05 E3
2M06 E3
2M07 E3
2M08 E3
2M09 E4
2M10 E4
2M11 E5
2M12 E5
2M13 E6
2M14 E6
2M15 E6
2M16 E6
2M17 E6
2M18 E7
2M19 E7
2M20 E7
2M21 E7
2M22 E8
2M23 E8
2M24 F7
2M25 A9
2M26 A10
2M27 A10
2M28 A10
2M29 A11
2M30 A11
2M31 E4
2M32 A9
2M33 F3
2M56 E7
2M60 F9
2M61 F11
2M62 G9
2M65 A2
2M66 A2
2M67 B3
2M68 B3
3M00 A4
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
3M05 B2
3M05 B2
3M05 B2
3M05 B2
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
3M87 A5
3M88 C8
3M89 C5
3M90 E4
4M00 B5
4M01 B5
4M02 B5
4M03 B5
4M04 F3
4M05 F3
4M06 F3
4M08 F7
4M09 F7
4M10 D10
4M16 F3
4M17 F3
5M00 E8
5M01 F7
5M02 E2
5M03 A2
5M04 A2
5M05 A10
7M00-1 A7
7M00-2 F4
7M01 B11
7M03 E8
7M14-1 E10
7M14-2 E11
7M15-1 F10
7M17 A4
FM01 G2
FM02 G2
FM03 G2
FM04 G2
FM05 G2
IM00 C8
IM01 E7
IM03 C5
IM04 C5
IM06 C5
IM07 C5
IM08 D5
IM09 E8
IM10 C8
IM11 F7

SSB: EPLD


B20 EPLD
B20
7N01 EPCS4SI8
7N02-1 EP1C12F256C8
CONTROL
FOR DEBUGGING
LVDS IN
B21
TO EPLD
B9
TO SCALER INTERFACE
7N03-1 BC847BS
7N03-2 BC847BS
7N04 THC63LVDF84B
LCD PANEL INTERFACE RECEIVER
7N02-2 EP1C12F256C8
BANK 1
7N02-5 EP1C12F256C8
BANK 4
CONTROL SIGNALS
B7
TO SCALER
B16
TO TOP CONN.
1N01 A8 4N18 D2
1N02 D10 4N19 D2
1N03 F11 4N20 D2
1N05 D5 4N21 D8
2N01 A1 4N22 D8
2N02 C1 5N01 A7
2N03 C1 5N02 D3
2N04 C2 5N03 D4
2N05 D3 5N04 D4
2N06 D3 5N05 C5
2N07 D4 6N01 F8
2N08 D4 7N01 A2
2N09 D4 7N02-1 A4
2N10 D5 7N02-2 D6
2N11 B6 7N02-5 D9
2N12 B6 7N03-1 C2
2N13 B6 7N03-2 C1
2N14 B7 7N04 D4
2N15 B7 FN01 B3
2N16 E10 FN02 B5
2N17 G10 FN03 C5
2N18 G11 FN04 B7
2N19 G11 FN05 B7
2N20 G11 FN06 B7
3N01 B2 FN07 B7
3N02 B2 FN08 B8
3N03 B2 FN09 B7
3N04 B2 FN10 B8
3N05 B3 FN11 E5
3N06 B3 FN12 E5
3N07 C1 FN13 F5
3N08 C2 FN14 F5
3N09 B3 FN15 F5
3N10 C1 FN16 F5
3N11 C4 FN17 G5
3N12 B4 FN18 D8
3N13 B5 FN19 D8
3N14 B5 FN20 F8
3N15 B6 FN21 F10
3N16 B6 FN22 F11
3N17 B6 FN23 F11
3N18 B6 FN24 F11
3N19 C5 FN25 G3
3N20 C5 FN26 D1
3N21 E2 FN27 D1
3N22 E2 FN28 D1
3N23 F2 FN29 D1
3N24 F2 FN30 D1
3N25 F2 FN31 D2
3N26 D3 FN32 D2
3N27 D6 FN33 D2
3N28 F8 FN34 D2
3N29 E10 FN35 D2
3N30 E10 IN01 B2
3N31 E10 IN02 B2
3N32 E10 IN03 B2
3N33 E10 IN04 B2
3N34 E10 IN05 B3
3N35 E10 IN06 C2
3N36 F10 IN07 E3
3N37 F10 IN08 C1
3N38 F10 IN09 C1
3N39 F10 IN10 B3
3N40 F10 IN11 B3
3N41 F10 IN12 C4
3N42 F10 IN13 D4
3N43 F10 IN14 D4
3N44 F10 IN15 D10
3N45 F10 IN16 D10
3N46 D9 IN17 D10
3N47 D9 IN18 D10
4N01 D1 IN19 F8
4N02 D1
4N03 D1
4N04 D1
4N05 D1
4N06 D1
4N07 D1
4N08 D1
4N09 D2
4N10 D1
4N11 D2
4N12 D2
4N13 D2
4N14 D2
4N15 D2
4N16 D2
4N17 D2
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SSB: EPLD

B21 EPLD

B21

EAGLE INTERFACE

LVDS TRANSMITTER

LVDS OUT

FOR MFD ONLY

FOR UFD ONLY

TO LCD PANEL (TIMING CONTROL)

TO PLASMA PANEL (TIMING CONTROL)

1P01 D7	FP07 D4
1P02 E7	FP08 E4
1P03 F7	FP09 E4
1P04 F7	FP10 F4
1P05 G7	FP11 F4
1P06 A11	FP12 F4
1P07 D11	FP13 F4
1P08 D11	FP14 F4
2P01 B2	FP15 D10
2P02 B2	FP16 D10
2P03 B3	FP17 E10
2P04 B3	
2P05 B3	
2P06 B3	
2P07 B3	
2P08 B3	
2P09 B3	
2P10 B4	
2P11 B4	
2P12 B4	
2P13 B4	
2P14 B4	
2P15 B1	
2P16 B1	
2P17 B2	
2P18 B2	
2P19 B3	
2P20 B3	
2P21 B3	
2P22 C2	
2P23 C2	
2P24 C3	
2P25 C3	
2P26 C3	
2P27 C3	
2P28 C3	
2P29 C3	
2P30 C3	
2P31 C5	
2P32 C5	
2P33 D5	
2P34 D5	
2P35 D6	
2P36 D7	
2P37 D7	
2P38 E7	
2P39 E7	
2P40 E7	
2P41 F7	
2P42 F7	
2P43 F7	
2P44 G7	
2P45 G7	
2P46 F9	
3P01 D4	
3P03 D4	
3P04 D9	
3P05 D9	
3P06 F9	
3P07 F9	
4000 D9	
4P01 E10	
4P02 F10	
4P03 E9	
4P04 E9	
4P05 F9	
4P06 F9	
4P07 F9	
4P08 F9	
4P09 F9	
4P10 D9	
4P11 E10	
4P12 F10	
5P01 A2	
5P02 B2	
5P03 C2	
5P04 C5	
5P05 C6	
5P06 C6	
7N02-3 A5	
7N02-4 D2	
7N02-6 A8	
7P01 B1	
7P02 D6	
7P03 F9	
FP01 A1	
FP02 A4	
FP03 B2	
FP04 B3	
FP05 C4	
FP06 D4	

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Layout Small Signal Board (Top Side Overview)

1102 C6 1J03 A6 1P06 A1 2224 A5 2243 B6 2263 B6 2285 A6 2509 A5 2754 A3 2A02 B2 2D20 D1 2E03 D3 2E19 C3 2F11 D1 2G35 D5 2J03 A6 2J19 A5 2L03 B5 2M03 C4 2M19 C4 2M66 B4 3207 B6 3242 B5 3278 B5 3752 A3 3814 B2 3D06 C1 3E10 D4 3E53 C4 3F26 D2 3G75 D5 4G21 D3 7214 B6
1103 B6 1J04 A6 1P07 A1 2226 B6 2244 B5 2264 B6 2286 B6 2611 A7 2755 A3 2A12 B4 2D21 C1 2E04 D3 2E20 C3 2F12 D1 2G36 D5 2J04 A1 2J20 A5 2L04 B5 2M04 C4 2M20 B4 2M68 B5 3214 B6 3244 B5 3279 B5 3753 A3 3815 B2 3D07 C1 3E11 D4 3E55 C4 3F27 D2 3G76 D5 4G22 D3 7215 B5
1105 B7 1J05 A1 1P08 A1 2228 B6 2245 B5 2265 B6 2287 B6 2615 A7 2756 A3 2A13 B3 2D22 C1 2E05 D3 2E21 C3 2F13 D2 2G37 D5 2J05 A1 2J21 A5 2L05 B5 2M05 C4 2M21 B4 2P15 A2 3215 B5 3245 B6 3280 B6 3754 A3 3816 C2 3D08 C1 3E12 C4 3F00 D2 3F28 D1 3G77 D5 4J01 A4 7216 B6
1201 B6 1J06 A3 2203 A5 2229 B6 2246 B5 2266 B6 2288 B5 2618 A6 2757 A3 2B01 B1 2D23 D1 2E06 C3 2E22 C4 2F14 D2 2G38 D5 2J06 A1 2J22 A5 2L06 B5 2M06 C4 2M22 B4 2P36 A1 3216 B5 3262 B6 3281 B6 3801 C1 3819 C2 3D09 C2 3E13 D3 3F09 D1 3F29 D1 3G78 D5 4J02 A5 7218 B5
1202 A6 1J07 A4 2205 B6 2230 B6 2247 B6 2267 B6 2290 C5 2704 A4 2758 A3 2B02 B1 2D24 C1 2E07 D3 2E23 C4 2F15 D2 2G39 D5 2J07 A1 2J23 A5 2L20 B5 2M07 C4 2M23 B4 2P37 A1 3217 B5 3263 B6 3282 C5 3802 C2 3A00 B2 3D10 C1 3E14 C3 3F10 D2 3G63 D4 3G79 D5 4M04 C4 7219 C5
1440 B5 1J08 A3 2206 B6 2231 A6 2248 B6 2268 B6 2291 B5 2706 A4 2800 C2 2B05 B1 2D25 C1 2E08 D3 2E33 C4 2F16 D2 2G40 D5 2J08 A1 2J26 A6 2L21 B4 2M08 C4 2M27 C4 2P38 A1 3222 A5 3264 B6 3285 B6 3803 B2 3A01 B2 3D12 C1 3E15 C3 3F11 D2 3G64 D3 3G80 D5 4M16 C4 7501 A6
1441 A5 1K00 A7 2207 B6 2232 B5 2249 B6 2269 A6 2447 A5 2709 A3 2815 C3 2B17 B1 2D26 C1 2E09 C3 2E34 D4 2G07 D4 2G41 D5 2J09 A1 2J27 A6 2L22 B5 2M09 C4 2M28 C4 2P39 A1 3223 A5 3265 B6 3286 B5 3804 B2 3A07 B2 3D15 C2 3E16 D3 3F16 D1 3G65 D4 3G81 D5 4M17 C4 7502 A6
1801 C3 1K01 B7 2208 A6 2233 B5 2250 A5 2270 A6 2448 A5 2713 A4 2901 B1 2B18 B1 2D27 C1 2E10 D3 2E35 C4 2G11 D4 2G43 D5 2J10 A3 2J28 A6 2L27 B5 2M10 C4 2M29 C4 2P40 A1 3224 A5 3266 B6 3291 B5 3805 B2 3A08 B2 3D16 C2 3E17 C3 3F17 D1 3G66 D3 3G82 D5 4N01 A2 7503 A6
1F00 D1 1K02 C7 2209 A6 2234 A6 2251 B5 2271 A5 2501 A5 2716 A3 2902 B1 2D03 D1 2D31 C1 2E11 C3 2F00 D2 2G20 D2 2G47 D3 2J11 A3 2J29 A6 2L28 B4 2M11 C4 2M30 C4 2P41 A1 3225 A5 3267 B6 3292 C5 3806 B2 3A10 B4 3D17 C2 3E18 C3 3F18 D1 3G67 D3 3G83 D5 4N02 A1 7504 A5
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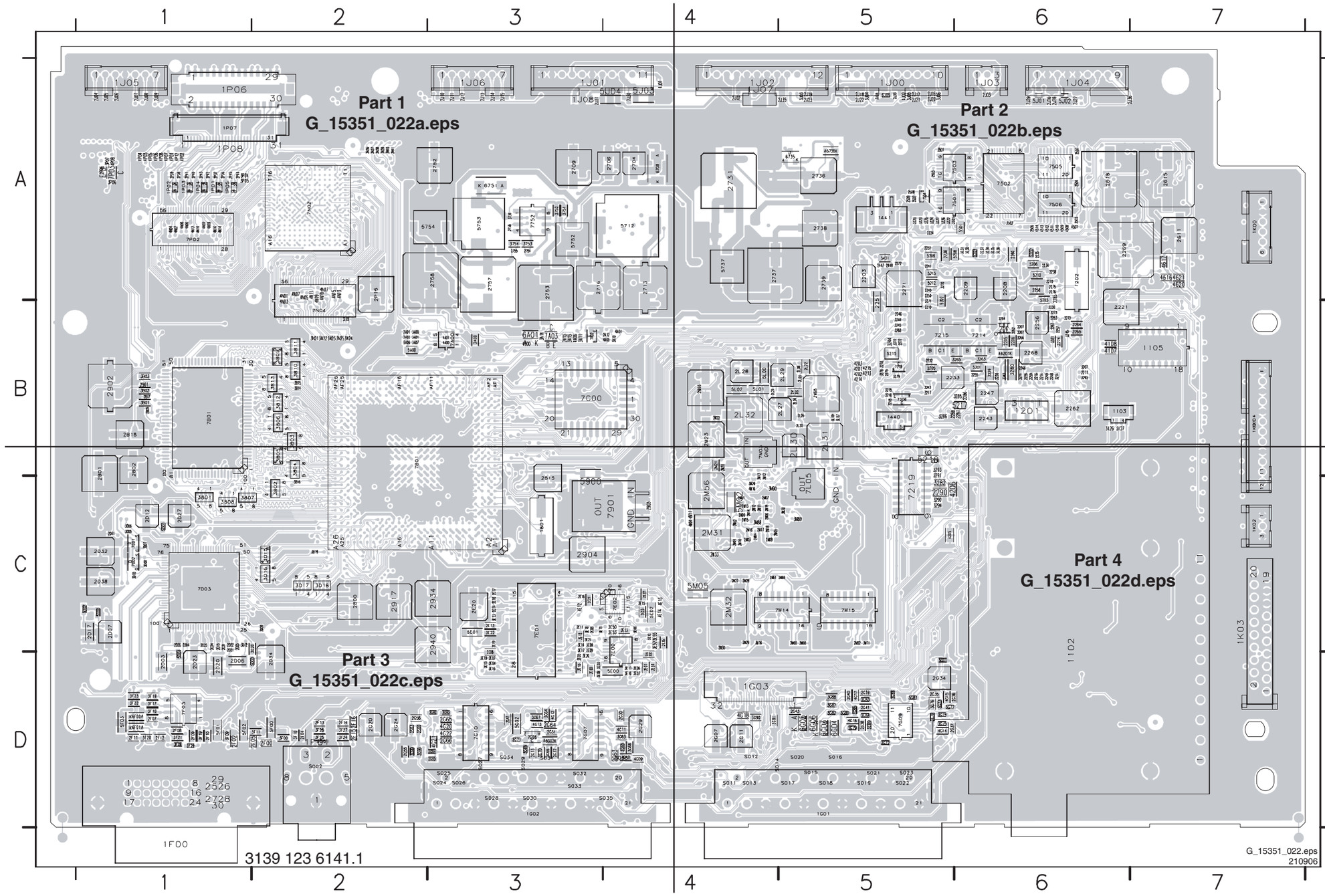

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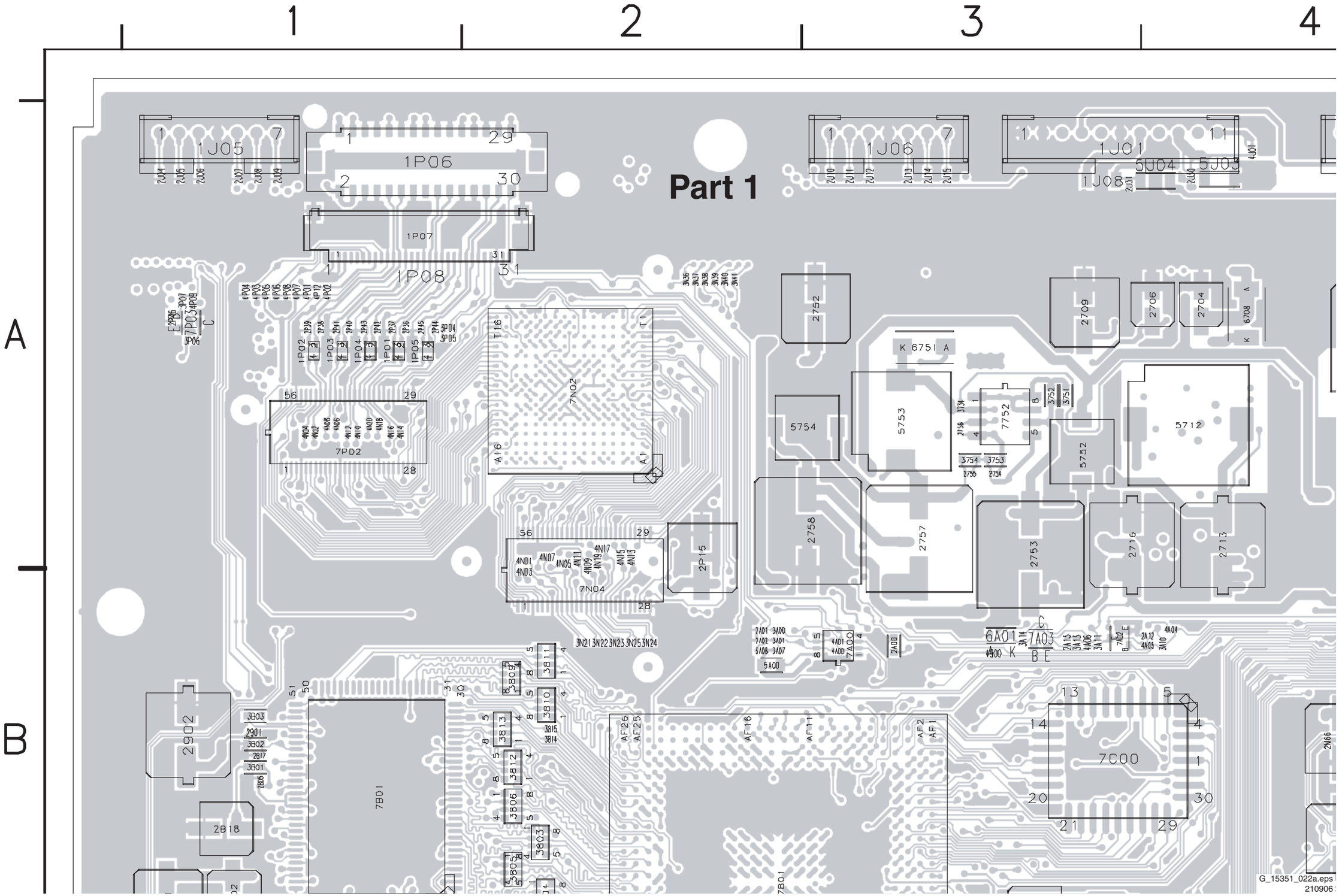

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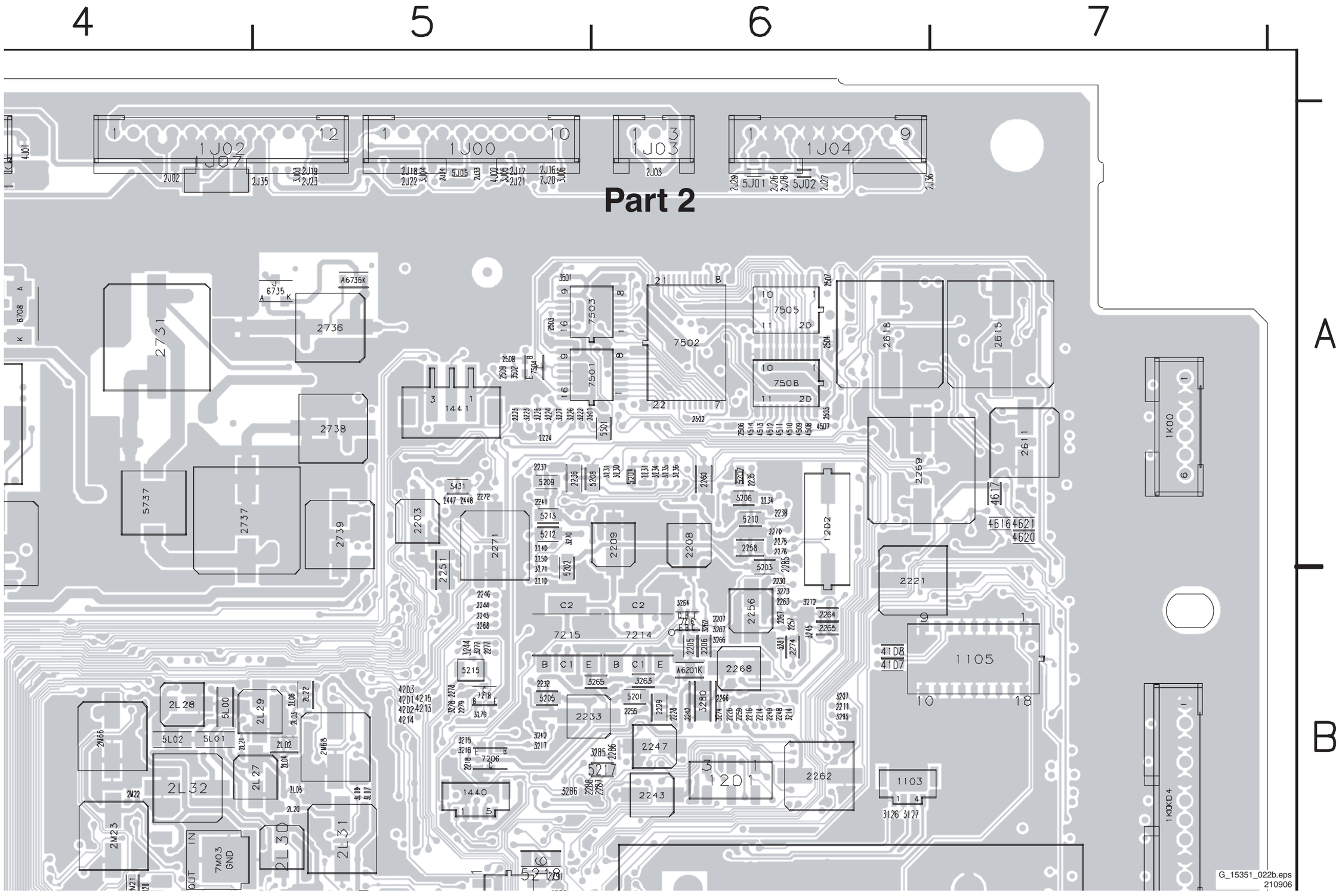

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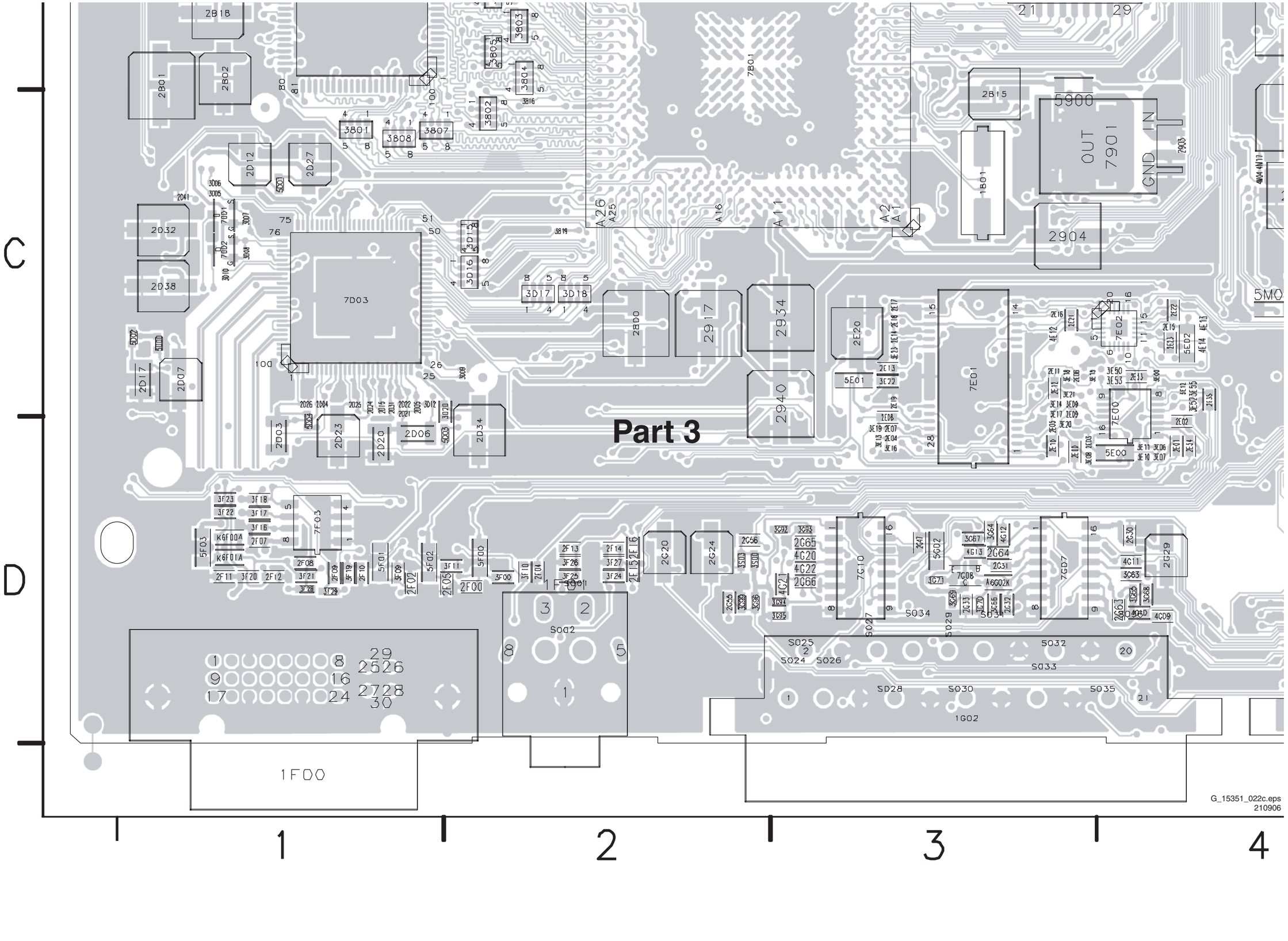

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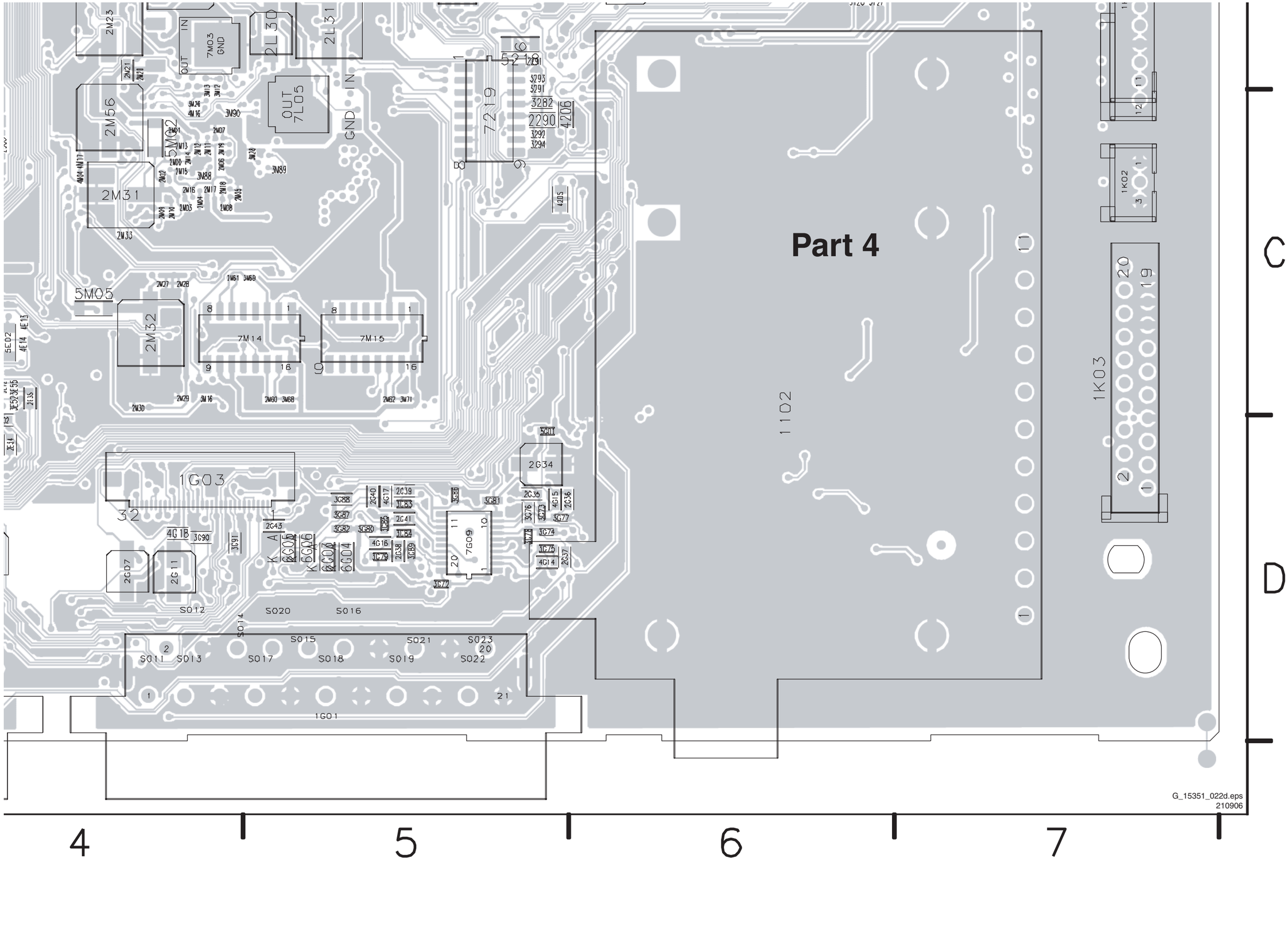

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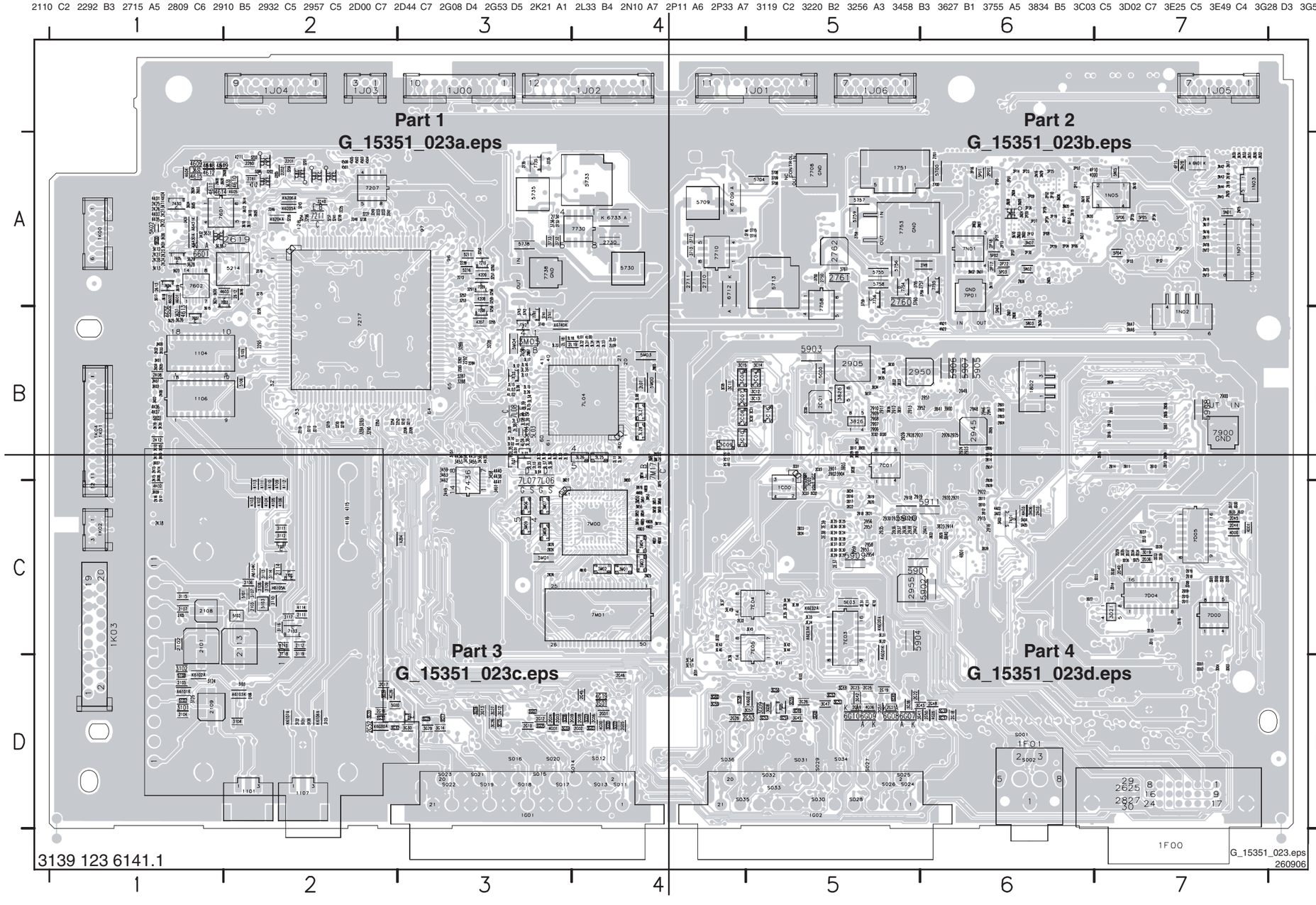

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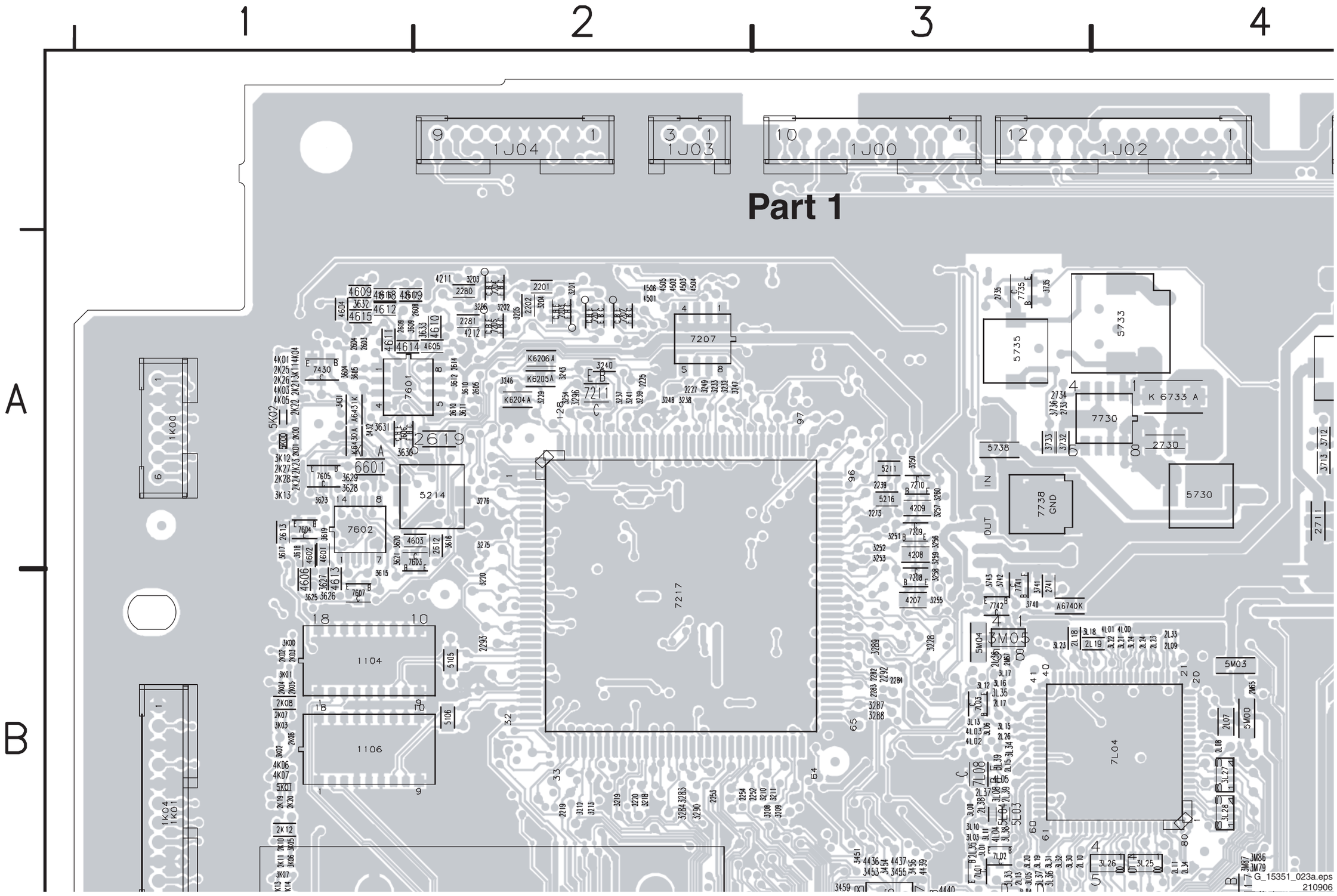
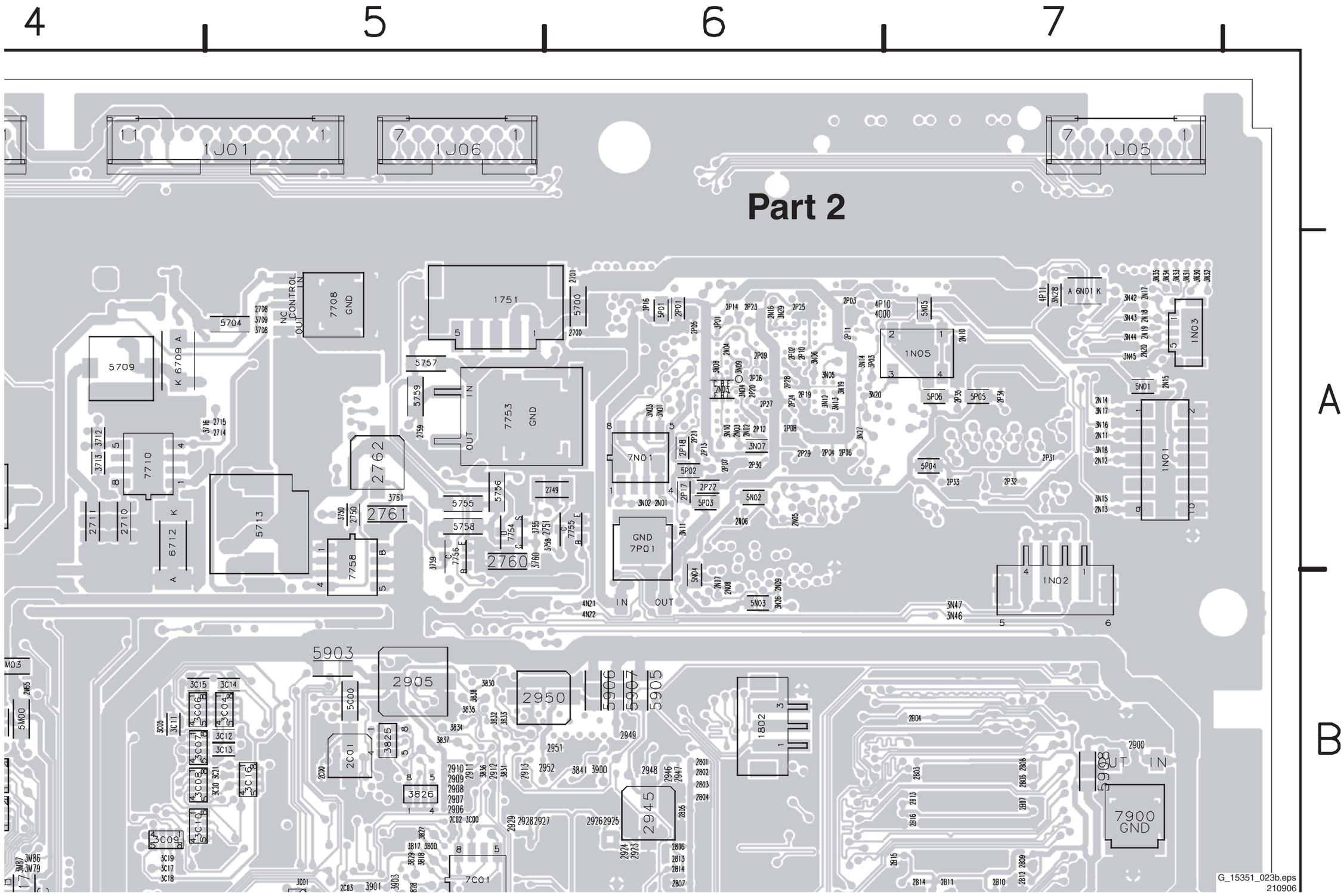
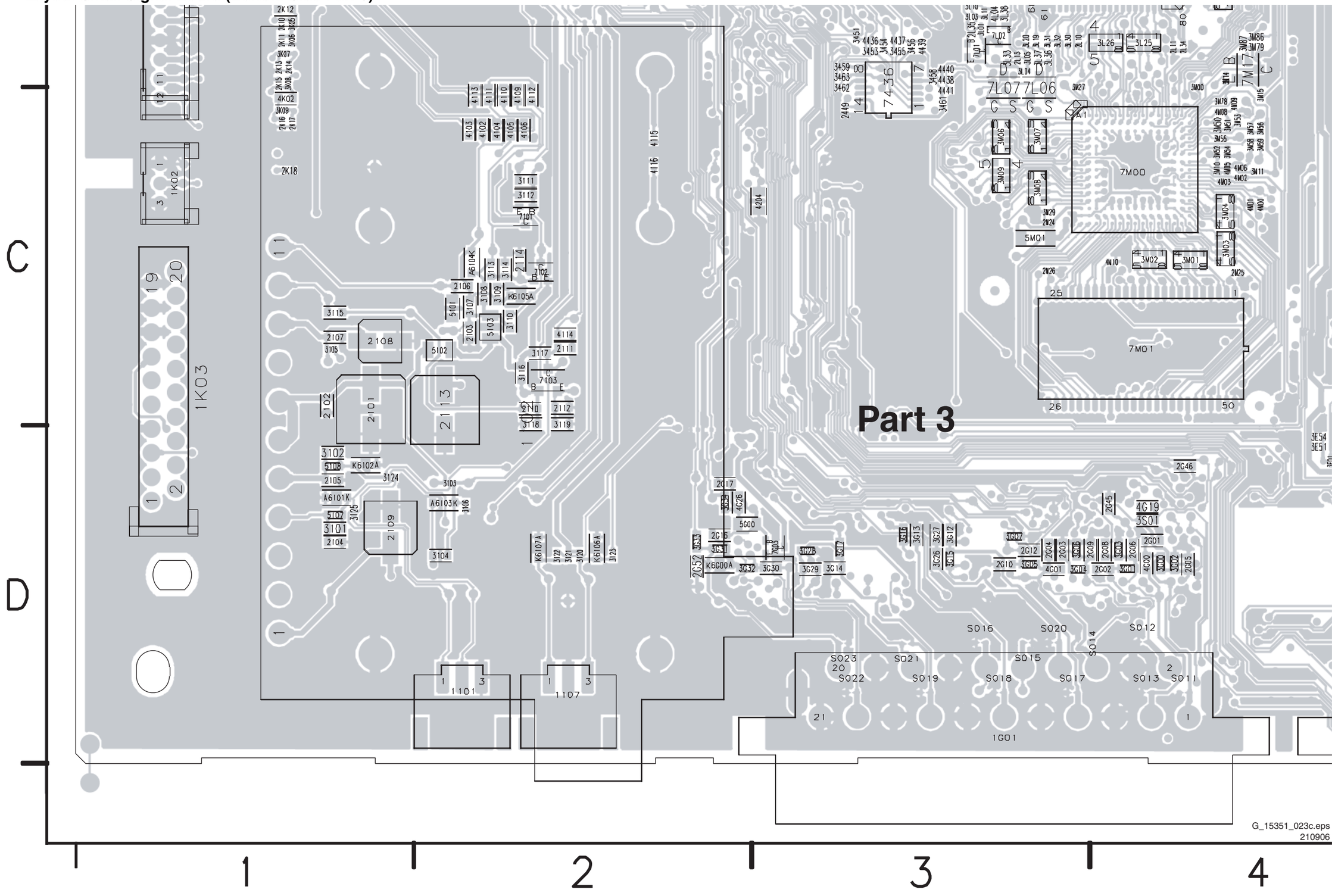


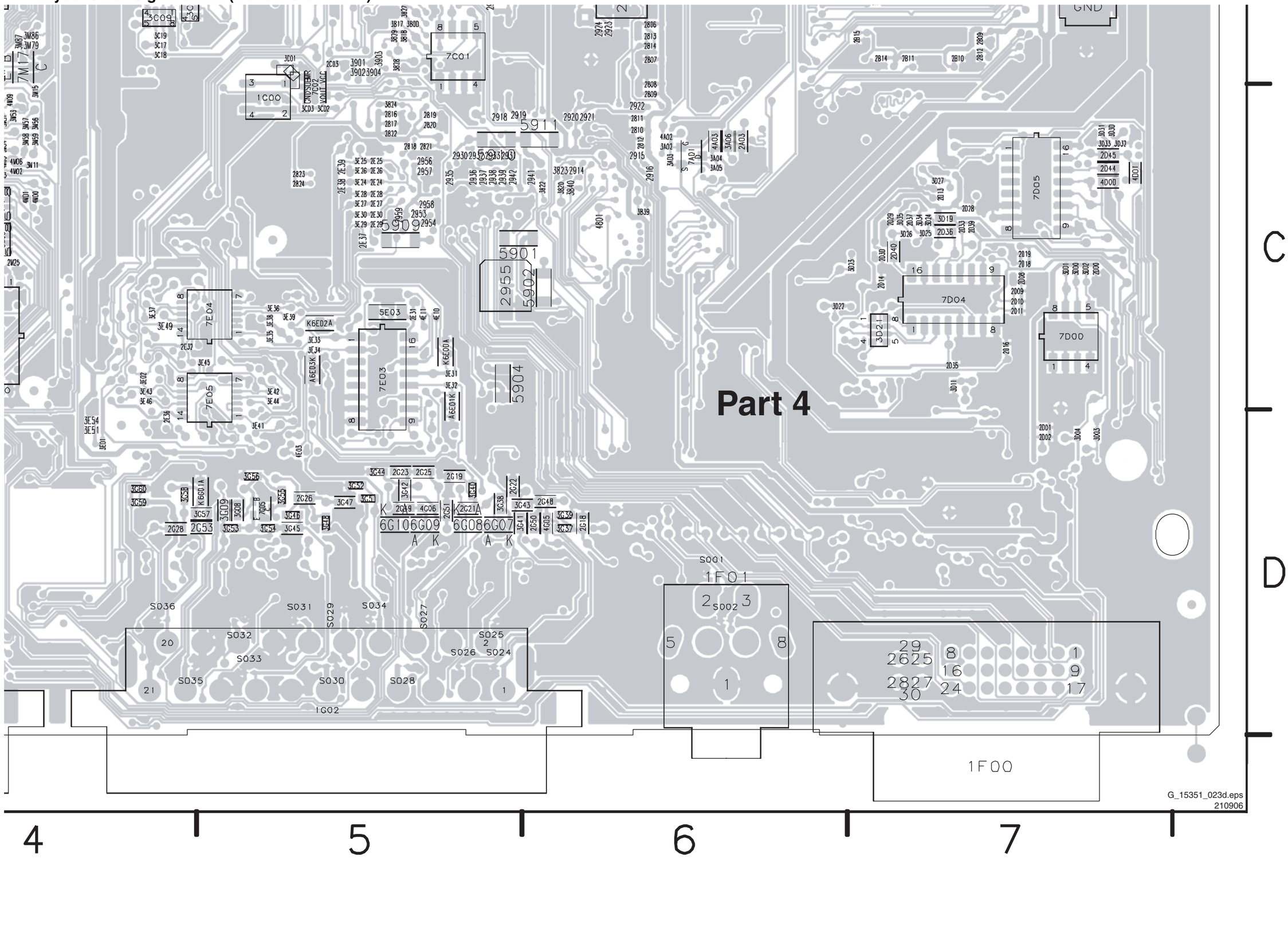
Layout Small Signal Board (Bottom Side Part 2)



Layout Small Signal Board (Bottom Side Part 3)



Layout Small Signal Board (Bottom Side Part 4)



Class D Audio Amplifier

C CLASS D AUDIO AMPLIFIER

POWER LINE FILTER

TO/FROM X200 OF PSU

B3B-PH-K

FROM 1752 OF SSB BOARD A5

PHASE INVERTER (UNITY GAIN)

Speaker Impedance	5006 & 5007	2023 & 2042
4 ohm	22uH	680n
6 ohm Selected	33uH	470n
8 ohm	47uH	330n

*Connection Inverted (R_CH)

RESERVED

3139 123 5970.1

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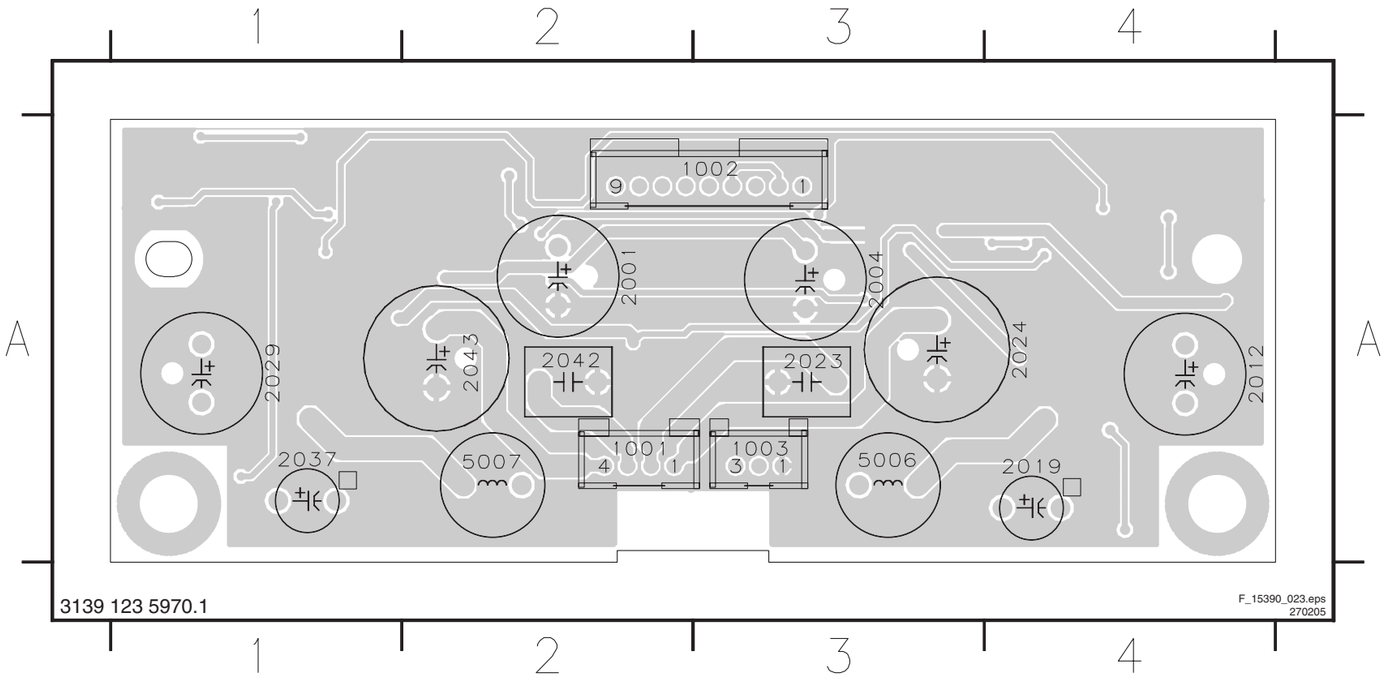
270205

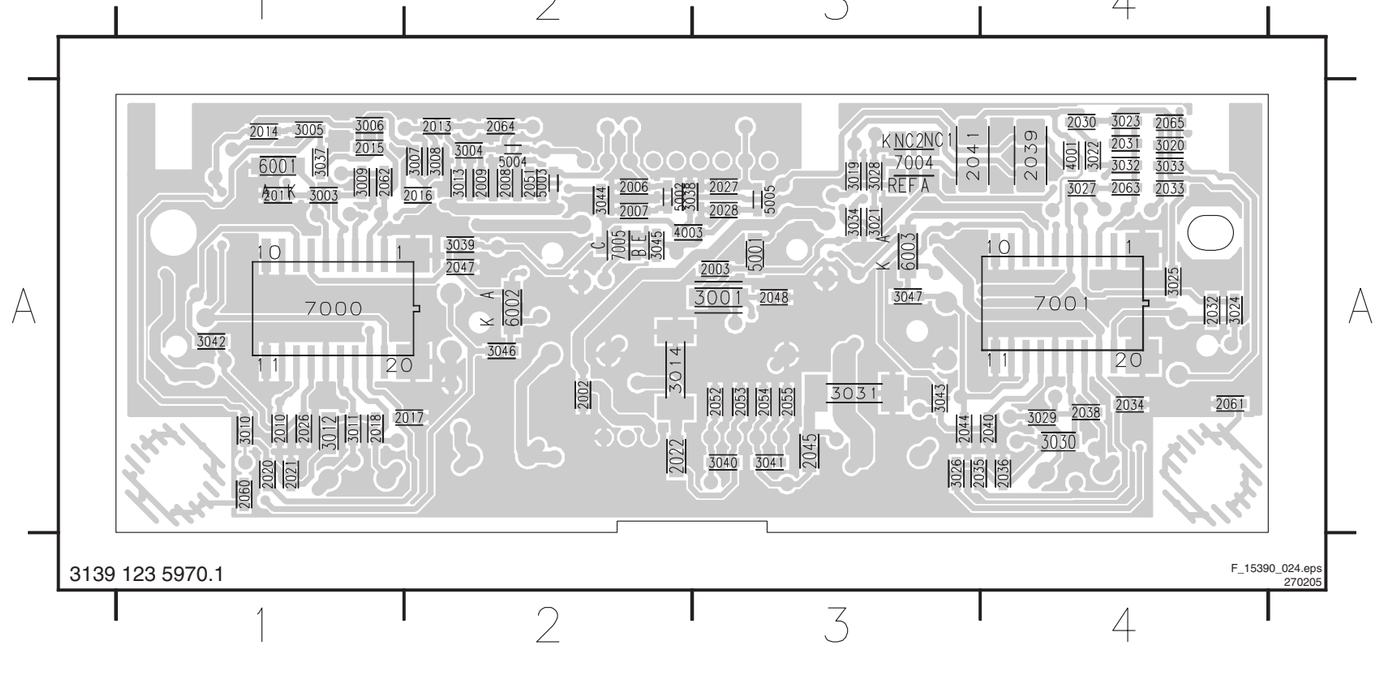
Layout Class D Audio Amplifier (Top Side)

1001 A2
1002 A3
1003 A3
2001 A2
2004 A3
2012 A4
2019 A4
2023 A3
2024 A4
2029 A1
2037 A1
2042 A2
2043 A2
5006 A3
5007 A2

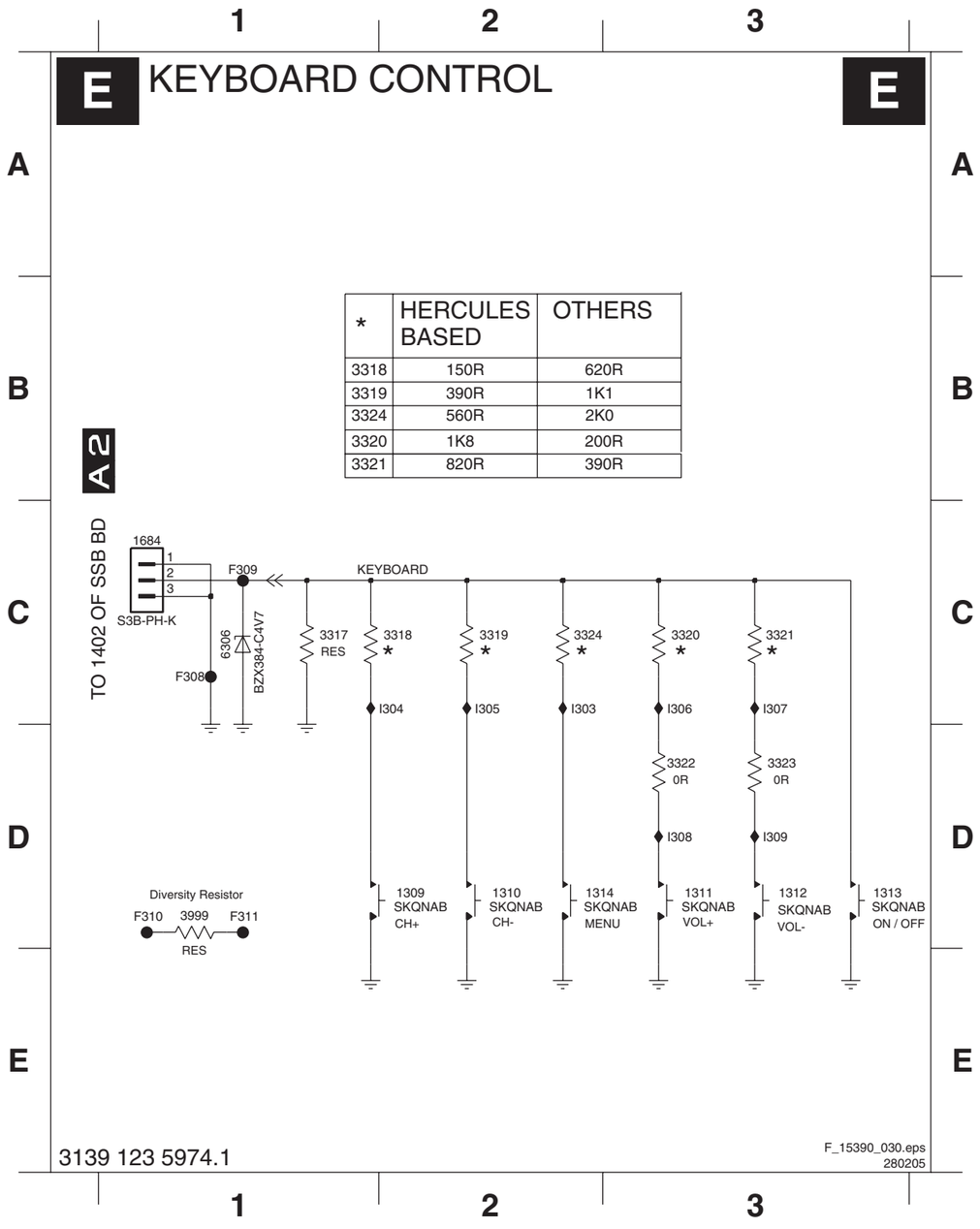


Layout Class D Audio Amplifier (Bottom Side)

2002 A2
2003 A3
2006 A2
2007 A2
2008 A2
2009 A2
2010 A1
2011 A1
2013 A2
2014 A1
2015 A1
2016 A2
2017 A2
2018 A1
2020 A1
2021 A1
2022 A2
2026 A1
2027 A3
2028 A3
2030 A4
2031 A4
2032 A4
2033 A4
2034 A4
2035 A3
2036 A4
2038 A4
2039 A4
2040 A4
2041 A3
2042 A3
2044 A3
2045 A3
2047 A2
2048 A3
2051 A2
2052 A3
2053 A3
2054 A3
2055 A3
2060 A1
2061 A4
2062 A1
2063 A4
2064 A3
3001 A3
3003 A1
3004 A2
3005 A1
3006 A1
3007 A2
3008 A2
3009 A1
3010 A1
3011 A1
3012 A1
3013 A2
3019 A3
3020 A3
3021 A3
3022 A4
3023 A4
3024 A4
3025 A4
3026 A3
3027 A4
3028 A3
3029 A4
3030 A4
3031 A3
3032 A4
3033 A4
3034 A3
3037 A1
3038 A2
3039 A2
3040 A3
3041 A3
3042 A1
3043 A2
3044 A2
3045 A2
3046 A2
3047 A3
4001 A2
4003 A2
5001 A2
5002 A2
5003 A2
5004 A2
5005 A3
6001 A1
6002 A2
6003 A3
7000 A1
7001 A2
7004 A3
7005 A2



Keyboard Control Panel



*	HERCULES BASED	OTHERS
3318	150R	620R
3319	390R	1K1
3324	560R	2K0
3320	1K8	200R
3321	820R	390R

1008 D1
1309 D2
1310 D2
1311 D3
1312 D3
1313 D3
1314 D2
1684 C1
3317 C1
3318 C2
3319 C2
3320 C3
3321 C3
3322 D3
3323 D3
3324 C2
3999 D1
6306 C1
F308 C1
F309 C1
F310 D1
F311 D1
I303 C2
I304 C2
I305 C2
I306 C3
I307 C3
I308 D3
I309 D3

Personal Notes:

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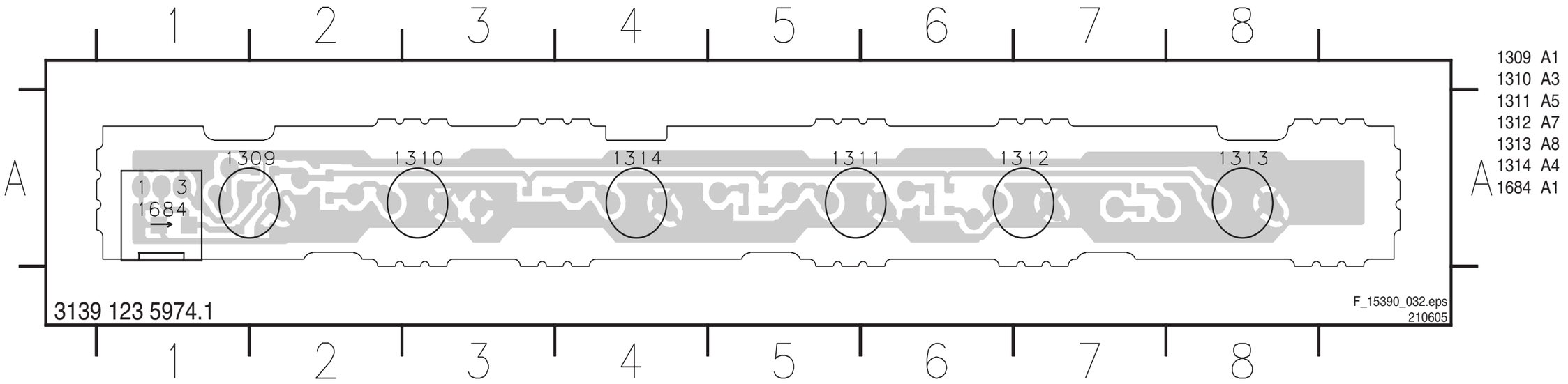
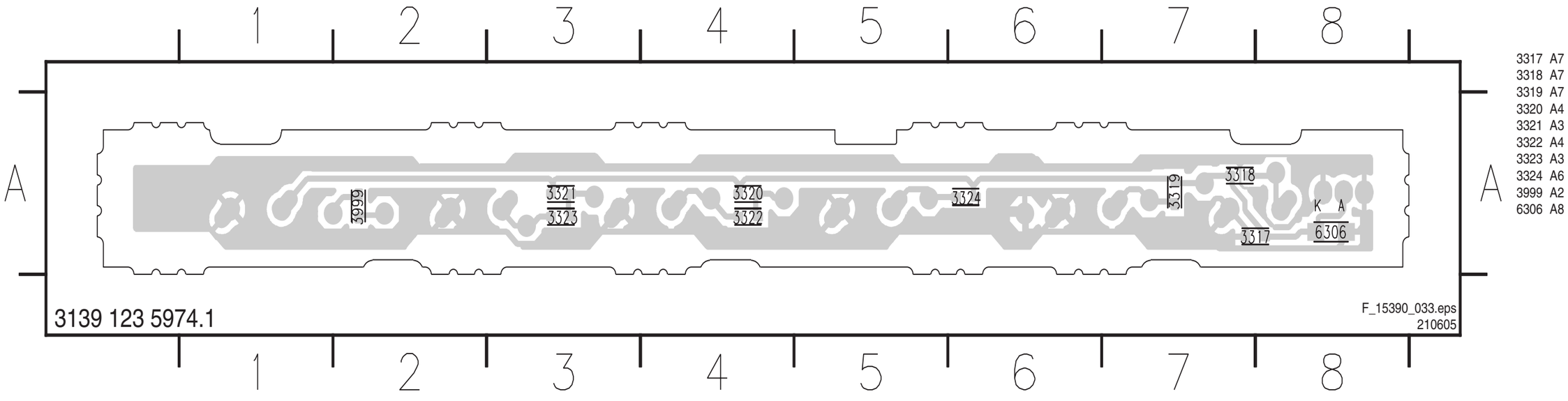
Layout Keyboard Control Panel (Top Side)

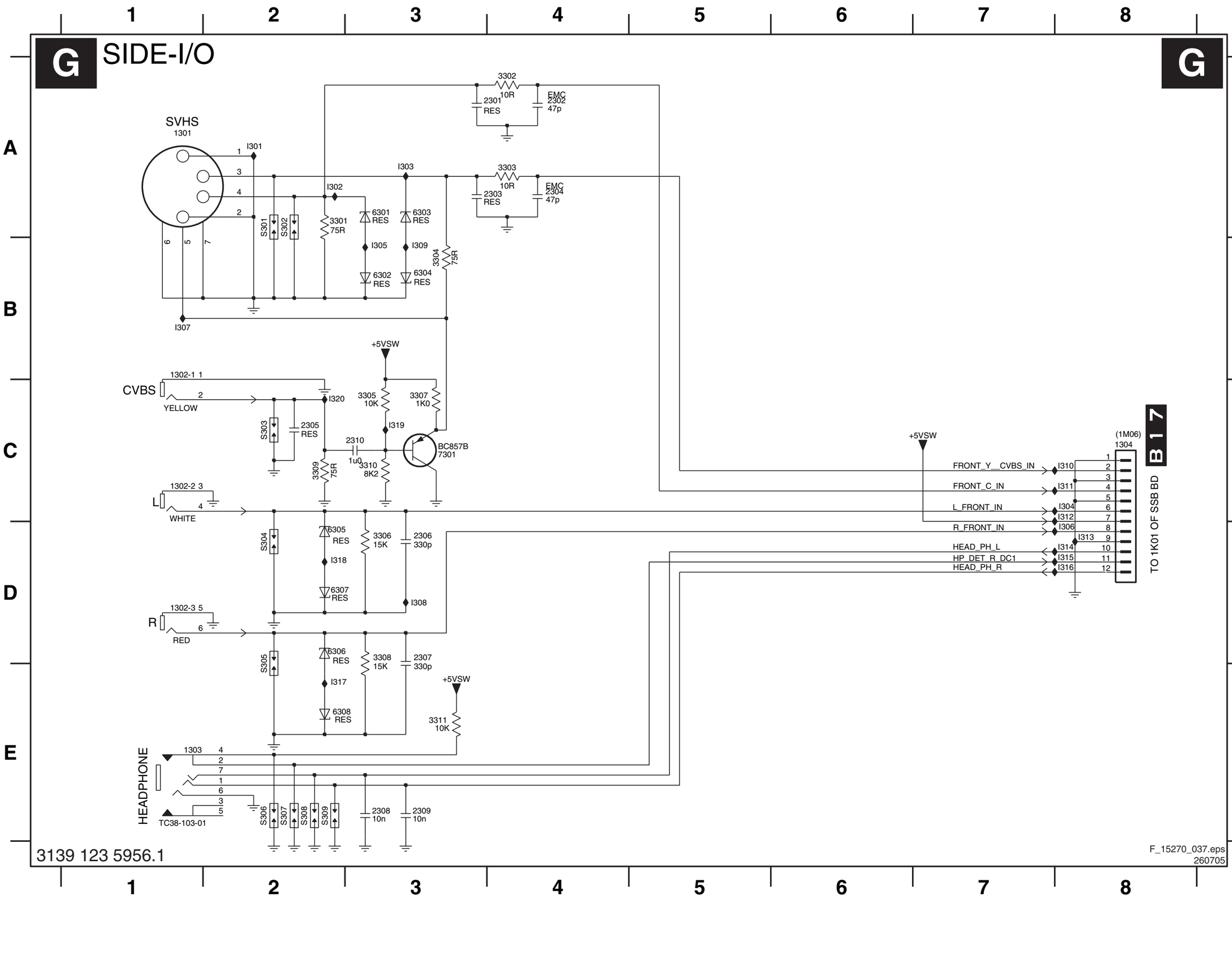


Layout Keyboard Control Panel (Bottom Side)



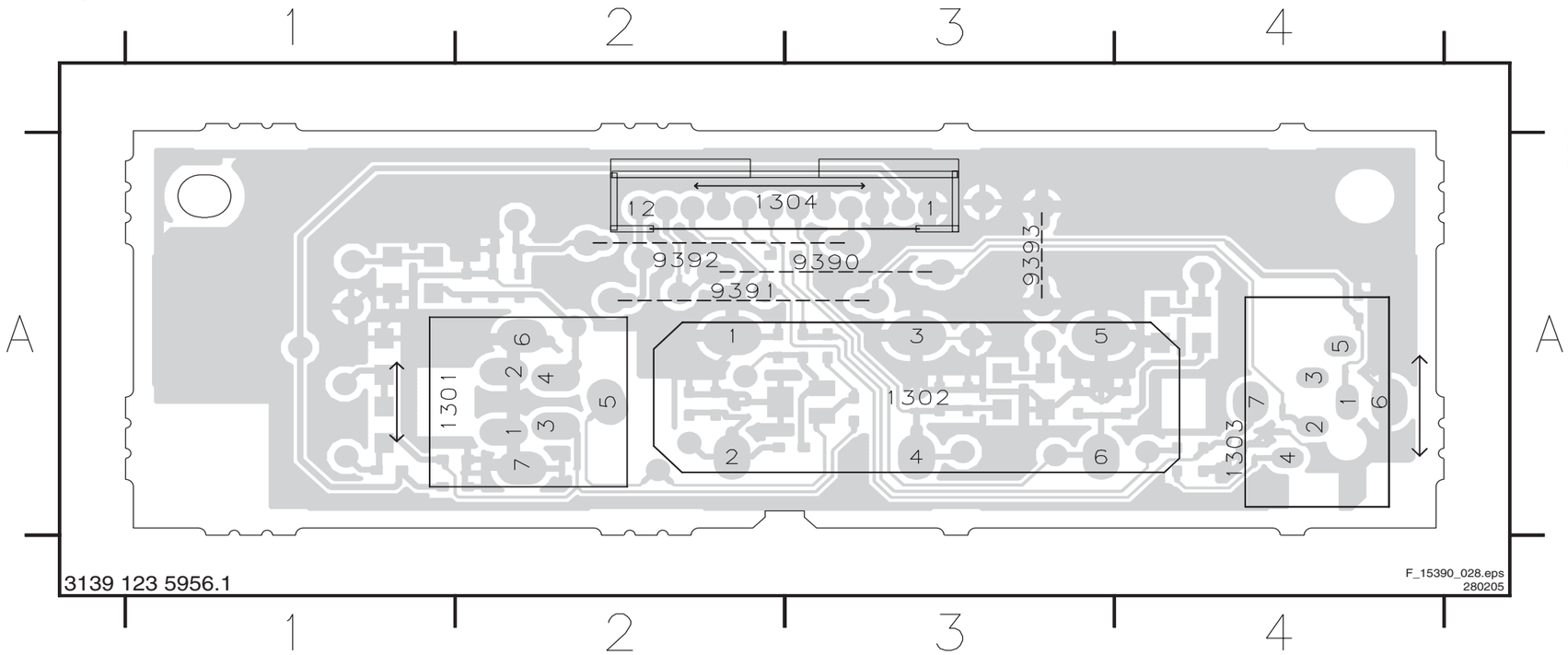
Side A/V Panel

G SIDE-I/O



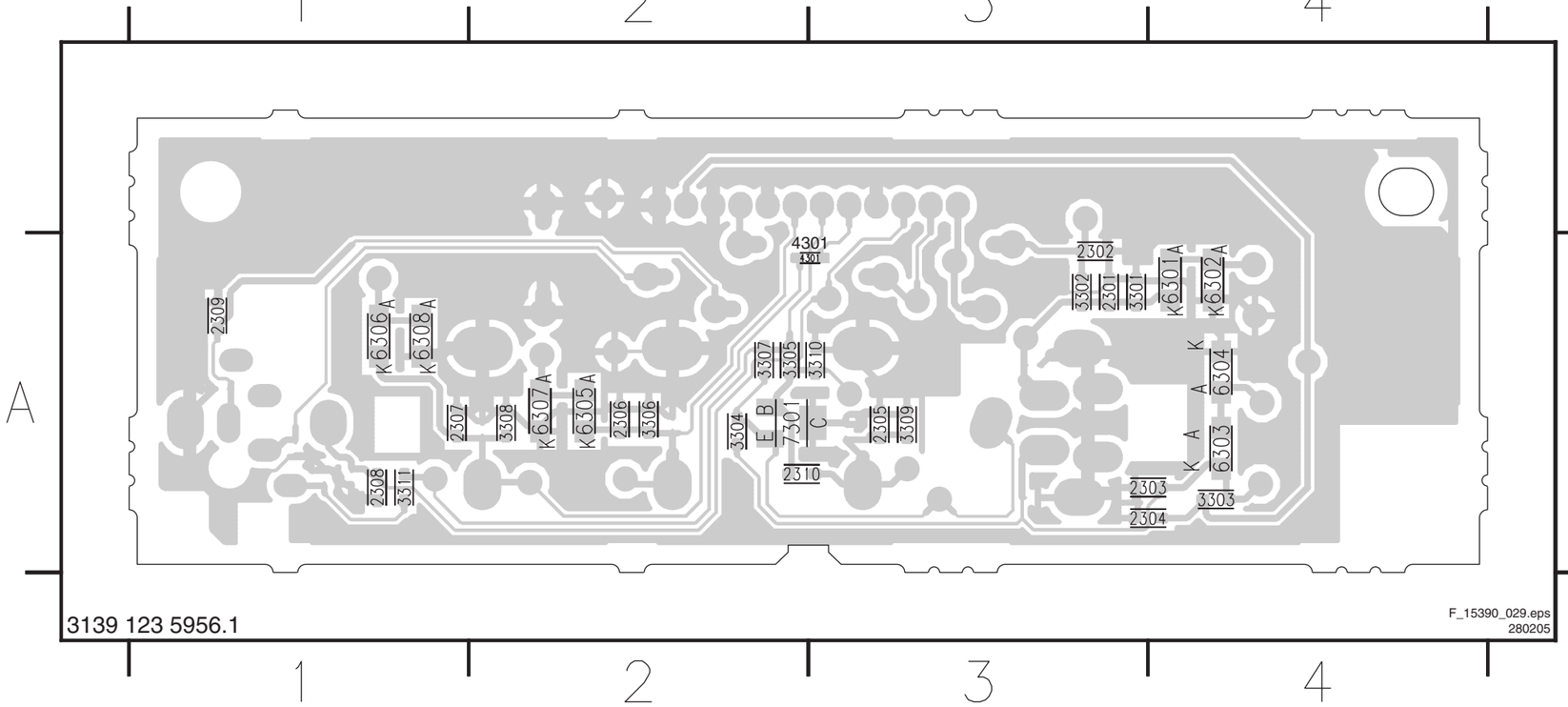
1301 A1
1302-1 B1
1302-2 C1
1302-3 D1
1303 E1
1304 C8
2301 A4
2302 A4
2303 A4
2304 A4
2305 C2
2306 D3
2307 D3
2308 E3
2309 E3
2310 C3
3301 A2
3302 A4
3303 A4
3304 B3
3305 C3
3306 D3
3307 C3
3308 D3
3309 C2
3310 C3
3311 E3
6301 A3
6302 B3
6303 A3
6304 B3
6305 D2
6306 D2
6307 D2
6308 E2
7301 C3
I301 A2
I302 A2
I303 A3
I304 C8
I305 B3
I306 D8
I307 B1
I308 D3
I309 B3
I310 C8
I311 C8
I312 C8
I313 D8
I314 D8
I315 D8
I316 D8
I317 E2
I318 D2
I319 C3
I320 C2
S301 A2
S302 A2
S303 C2
S304 D2
S305 D2
S306 E2
S307 E2
S308 E2
S309 E2

Layout Side A/V Panel (Top Side)



1301 A1
1302 A3
1303 A4
1304 A2
9390 A3
9391 A2
9392 A2
9393 A3

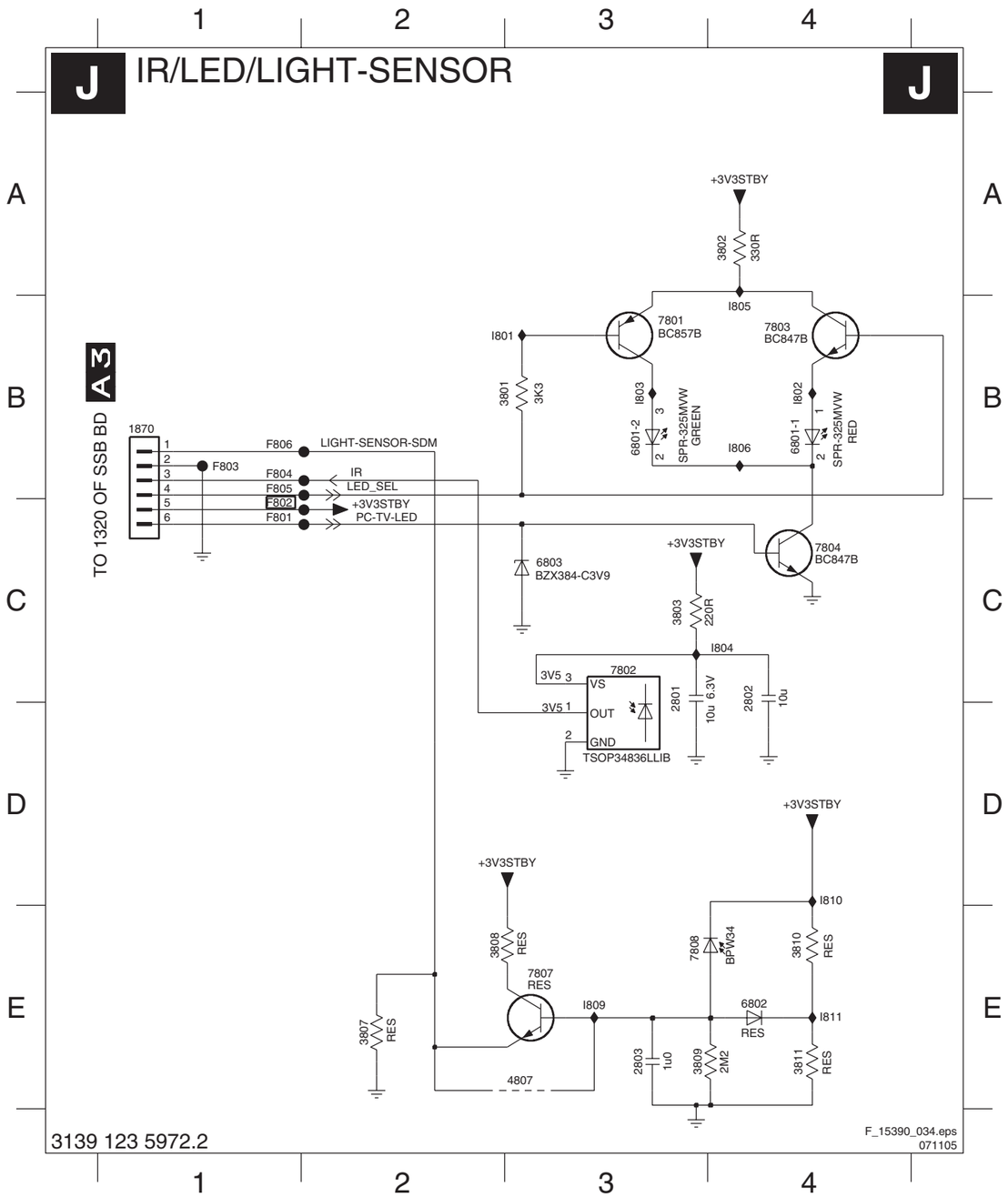
Layout Side A/V Panel (Bottom Side)



2301 A3
2302 A3
2303 A3
2304 A3
2305 A3
2306 A2
2307 A1
2308 A1
2309 A1
2310 A2
3301 A3
3302 A3
3303 A4
3304 A2
3305 A2
3306 A2
3307 A2
3308 A2
3309 A3
3310 A3
3311 A1
4301 A3
6301 A4
6302 A4
6303 A4
6304 A4
6305 A2
6306 A1
6307 A2
6308 A1
7301 A2

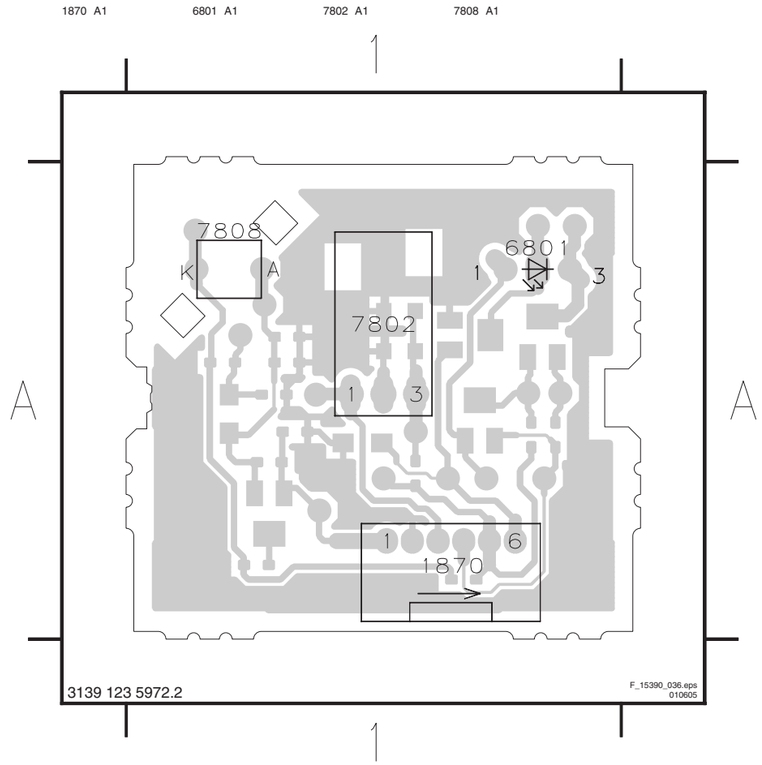
IR-LED and Light Sensor Panel

1870 B1	3801 B2	3808 E2	4807 E3	6803 C3	7804 C4	F802 C1	F806 B1	I804 C4	I810 D4
2801 C3	3802 A4	3809 E3	6801-1 B4	7801 B3	7807 E3	F803 B1	I801 B2	I805 B4	I811 E4
2802 C4	3803 C3	3810 E4	6801-2 B3	7802 C3	7808 E3	F804 B1	I802 B4	I806 B4	
2803 E3	3807 E2	3811 E4	6802 E4	7803 B4	F801 C1	F805 B1	I803 B3	I809 E3	



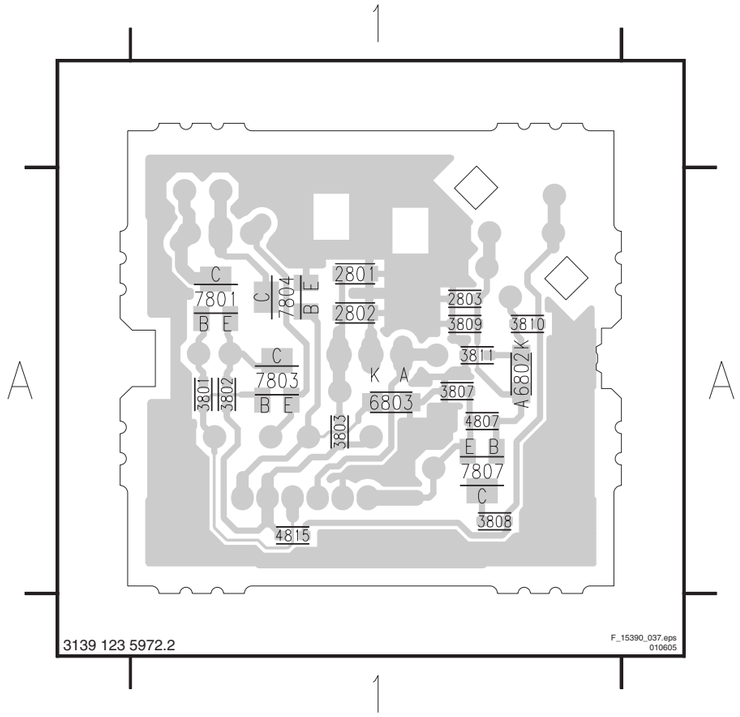
Layout IR-LED and Light Sensor Panel (Top Side)

1870 A1 6801 A1 7802 A1 7808 A1



Layout IR-LED and Light Sensor Panel (Bottom Side)

2801 A1 2803 A1 3802 A1 3807 A1 3809 A1 3811 A1 4815 A1 6803 A1 7803 A1 7807 A1
2802 A1 3801 A1 3803 A1 3808 A1 3810 A1 4807 A1 6802 A1 7801 A1 7804 A1



Personal Notes:

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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 LCD-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

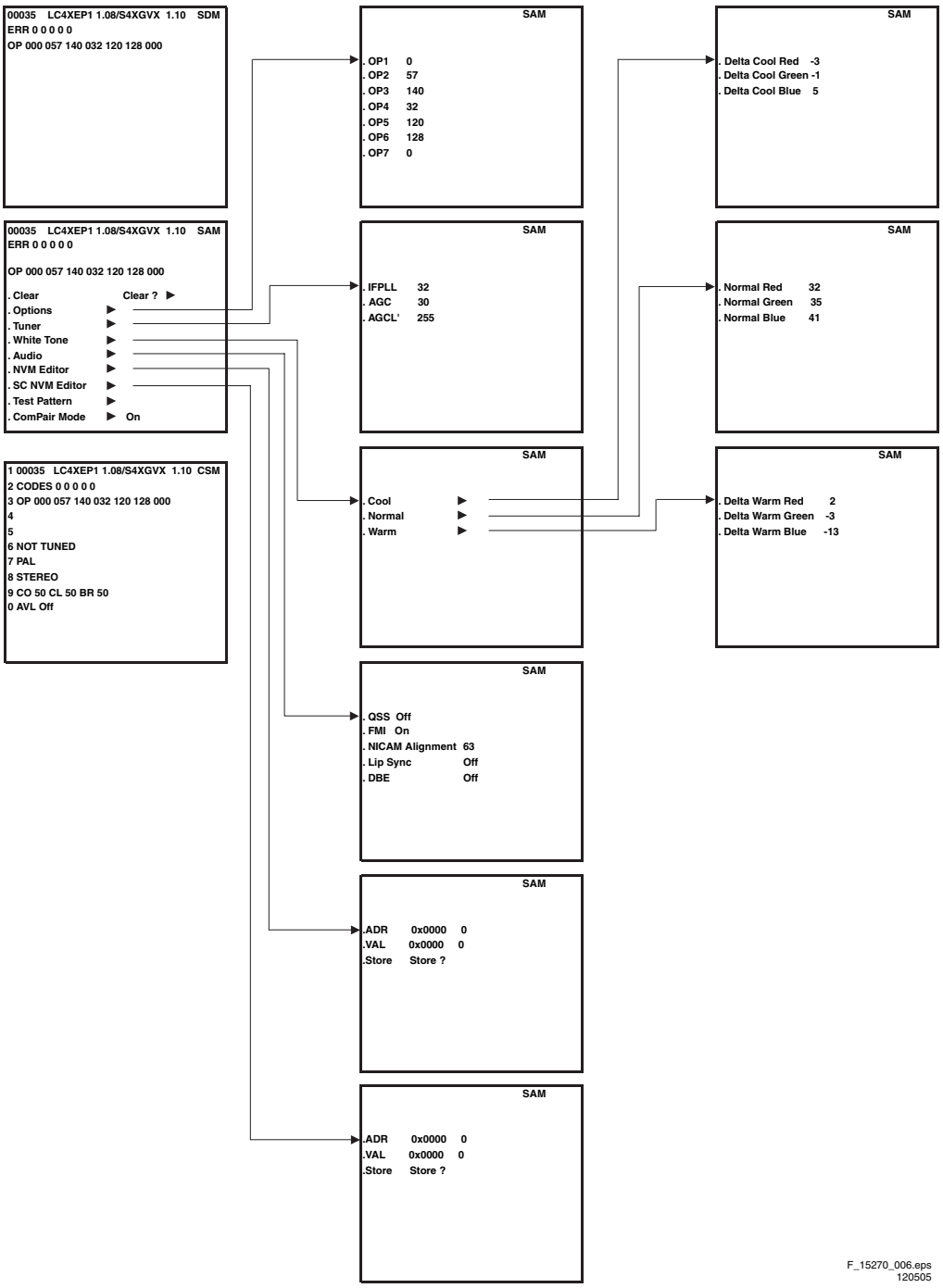

Figure 8-1 Overview SAM menu.

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				Without ADC & 3D Combfilter	
Setting	Hercules NVM Address (decimal value)	32PF7320/10	32PF5320/10	26PF5320/10	Settings Range (decimal value)	26PF4310/10	Settings Range (decimal value)
NVM_ADC_GAIN_R	006	110	110	110	075 - 155	N.A.	N.A.
NVM_ADC_GAIN_G	007	180	180	180	150 - 200	N.A.	N.A.
NVM_ADC_GAIN_B	008	110	110	110	075 - 155	N.A.	N.A.

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				Without ADC & 3D Combfilter	
Setting	Scaler NVM Address (decimal value)	32PF7320/10	32PF5320/10	26PF5320/10	Settings Range (decimal value)	26PF4310/10	Settings Range (decimal value)
ADC_RED_OFFSET2	338	080	080	080	050 - 110	080	050 - 110
ADC_GRN_OFFSET2	339	080	080	080	050 - 110	080	050 - 110
ADC_BLU_OFFSET2	340	080	080	080	050 - 110	080	050 - 110
ADC_RED_GAIN	341	065	065	065	040 - 095	170	135 - 190
ADC_GRN_GAIN	343	065	065	065	040 - 095	135	135 - 190
ADC_BLU_GAIN	345	065	065	065	040 - 095	170	135 - 190
PC Greyscale settings							
		These models are with ADC & Columbus 3D Combfilter				Without ADC & 3D Combfilter	
Setting	Scaler NVM Address (decimal value)	32PF7320/10	32PF5320/10	26PF5320/10	Settings Range (decimal value)	26PF4310/10	Settings Range (decimal value)
ADC_RED_OFFSET2	325	080	080	080	040 - 090	080	040 - 090
ADC_GRN_OFFSET2	326	080	080	080	040 - 090	080	040 - 090
ADC_BLU_OFFSET2	327	080	080	080	040 - 090	080	040 - 090
ADC_RED_GAIN	328	200	200	200	180 - 270	154	180 - 270
ADC_GRN_GAIN	330	200	200	200	180 - 270	154	180 - 270
ADC_BLU_GAIN	332	200	200	200	180 - 270	154	180 - 270
HD Greyscale settings							
		These models are with ADC & Columbus 3D Combfilter				without ADC & 3D Combfilter	
Setting	Scaler NVM Address (decimal value)	32PF7320/10	32PF5320/10	26PF5320/10	Settings Range (decimal value)	26PF4310/10	Settings Range (decimal value)
ADC_RED_OFFSET2	351	064	064	064	050 - 090	064	050 - 090
ADC_GRN_OFFSET2	352	082	082	082	050 - 090	082	050 - 090
ADC_BLU_OFFSET2	353	064	064	064	050 - 090	064	050 - 090
ADC_RED_GAIN	354	159	159	159	120 - 200	159	120 - 200
ADC_GRN_GAIN	356	144	144	144	120 - 200	144	120 - 200
ADC_BLU_GAIN	358	147	147	147	120 - 200	147	120 - 200

8.3.5 Panel Size Settings

The table below shows the NVM settings for panel selection, based on panel size and manufacturer. Use the SC NVM editor in the SAM menu to change the panel code at decimal address 320.

Caution:

- **Make sure to choose the right panel, because incorrect NVM settings may seriously hamper the correct functioning 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 8-2 Panel size settings

Option table for panel size settings		
Manufacturer	**Size (inch)**	**Panel code (hex)**
LPL	32	0F
LPL	26	1A
Sharp	32	10
Sharp	26	11
AUO	26	08
QDI	26	19

8.3.6 Sound

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

8.3.7 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 8-3 Option codes OP1...OP7

Option table for quickly restoring the HERCULES to its Factory Default settings		
Model number	**42PF7320/10**	**42PF5320/10**
OP1	152	152
OP2	37	37
OP3	79	79
OP4	113	113
OP5	252	252
OP6	27	27
OP7	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 8-4 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	32PF7320/10	32PF5320/10	26PF5320/10	26PF4310/10
OP1	**Description of feature/option to be switched ON or OFF**				
bit 7 (msb)	OP_PHILIPS_TUNER	1	1	1	1
bit 6	OP_FM_RADIO	0	0	0	0
bit 5	OP_LNA	0	0	0	0
bit 4	OP_ATS // for EU	1	1	1	1
bit 3	OP_ACI	1	1	1	1
bit 2	OP_UK_PNP	0	0	0	0
bit 1	OP_VIRGIN_MODE	0	0	0	0
bit 0 (lsb)	OP_CHINA	0	0	0	0
	Total DEC Value	152	152	152	152
	Total HEX Value	98	98	98	98
OP2					
bit 7 (msb)	OP_SC	0	0	0	0
bit 6	OP_IBEX	0	0	0	0
bit 5	OP_CHANNEL_NAMING	1	1	1	1
bit 4	OP_LTI (Lum Transcient Improvmt)	0	0	0	0
bit 3	OP_TILT	0	0	0	0
bit 2	OP_FINE_TUNING	1	1	1	1
bit 1	OP_PIP_PHILIPS_TUNER	0	0	0	0
bit 0 (lsb)	OP_HUE	1	1	1	1
	Total DEC Value	37	37	37	37
	Total HEX Value	25	25	25	25
OP3					
bit 7 (msb)	OP_EW_FUNCTION	0	0	0	0
bit 6	OP_PIXEL_PLUS	1	0	0	0
bit 5	OP_PIP_SPLITTER // temp	0	0	0	0
bit 4	OP_SPLITTER // temp	0	0	0	0
bit 3	OP_VIRTUAL_DOLBY	1	1	1	1
bit 2	OP_WIDE_SCREEN	1	1	1	1
bit 1	OP_WSSB	1	1	1	1
bit 0 (lsb)	OP_OP_ME5 // OP_ME5 - 5/6 local buttons implementation	1	1	1	0
	Total DEC Value	79	15	15	14
	Total HEX Value	4F	0F	0F	0E
OP4					
bit 7 (msb)	OP_LIP_SYNC	0	0	0	0
bit 6	OP_HD	1	1	1	1
bit 5	OP_ULTRA_BASS	1	1	1	1
bit 4	OP_DELTA_VOLUME	1	1	1	1
bit 3	OP_TAIWAN_KOREA	0	0	0	0
bit 2	OP_VOLUME_LIMITER	0	0	0	0
bit 1	OP_STEREO_DBX	0	0	0	0
bit 0 (lsb)	OP_STEREO_NICAM_2CS	1	1	1	1
	Total DEC Value	113	113	113	113
	Total HEX Value	71	71	71	71
OP5					
bit 7 (msb)	OP_AV1	1	1	1	1
bit 6	OP_AV2	1	1	1	1
bit 5	OP_AV3	1	1	1	1
bit 4	OP_CVI	1	1	1	1
bit 3	OP_SVHS2	1	1	1	1
bit 2	OP_SVHS3	1	1	1	1
bit 1	OP_HOTEL_MODE	0	0	0	0
bit 0 (lsb)	OP_SIMPLY_FACTORY=OP_BTSC_AVSTEREO	0	0	0	0
	Total DEC Value	252	252	252	252
	Total HEX Value	FC	FC	FC	FC
OP6					
bit 7 (msb)	OP_PERSONAL_ZAPPING	0	0	0	0
bit 6	OP_SMART_SURF	0	0	0	0
bit 5	OP_FMTRAP	0	0	0	0
bit 4	OP_COMBFILTER	1	1	1	1
bit 3	OP_ACTIVE_CONTROL	1	1	1	1
bit 2	OP_VIDEO_TEXT	0	0	0	0
bit 1	OP_LIGHT_SENSOR	1	1	1	1
bit 0 (lsb)	OP_TWIN_TEXT	1	1	1	1
	Total DEC Value	27	27	27	27
	Total HEX Value	1B	1B	1B	1B
OP7					
bit 7 (msb)	OP_TIME_WIN1	0	0	0	0
bit 6	OP_DVB_USB = OP_MALAY	0	0	0	0
bit 5	OP_AMBILIGHT	0	0	0	0
bit 4	OP_COLUMBUS	1	1	1	0
bit 3	OP_DUMMY6	0	0	0	0
bit 2	OP_DUMMY7	0	0	0	0
bit 1	OP_WEST_EU	1	1	1	1
bit 0 (lsb)	OP_MULTI_STANDARD_EUR	1	1	1	1
	Total DEC Value	19	19	19	3
	Total HEX Value	03	03	03	03

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

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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 LC4.3 LCD TV is a global LCD TV for the year 2005. It is the successor of the LC4.2 LCD TV and covers screens sizes 26 inch (in 15:9 and 16:9 ratio) and 32 inch (in 16:9 ratio) and has a new styling, called ME5. There are three different picture qualities available, depending on the model: Pixel Plus, Digital Cristal Clear and Cristal Clear. The block diagram below (Figure “Block diagram”) shows the Pixel Plus architecture; the architectures of the other models are 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, I/O panel, Side I/O and Local Keyboard panel and Power Supply panel. The functions for video/audio processing, microprocessor (P), 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

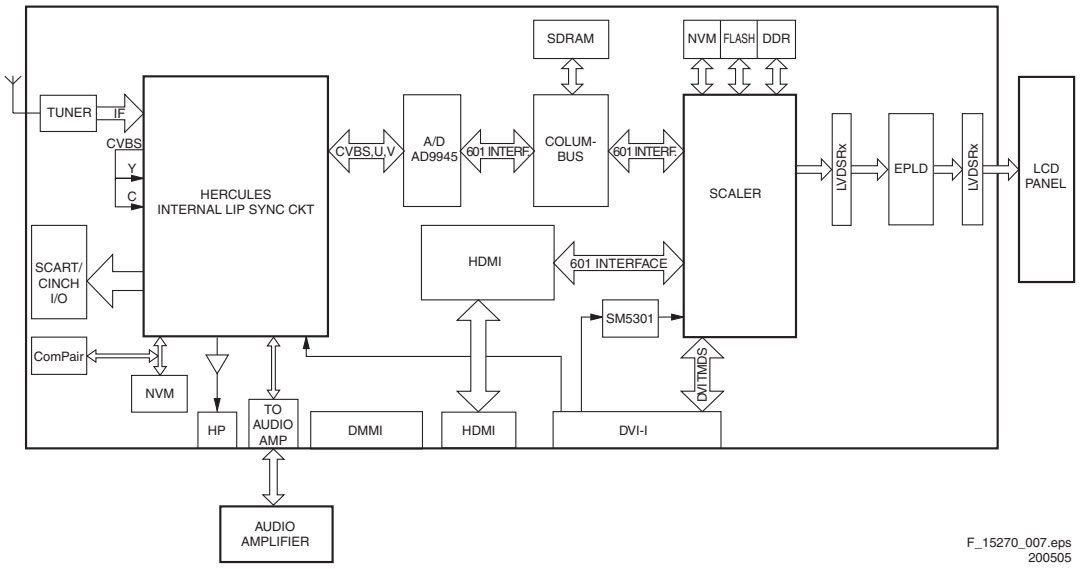


Figure 9-1 Block Diagram

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
32PF7320/10	Pixel Plus
32PF5320/10	Digital Crystal Clear
26PF5320/10	Digital Crystal Clear
26PF4310/10	Crystal Clear

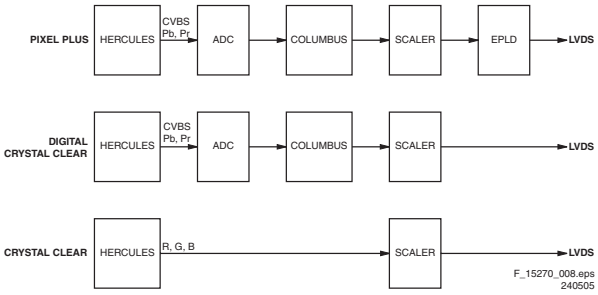


Figure 9-2 Block diagram of the internal building blocks

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)

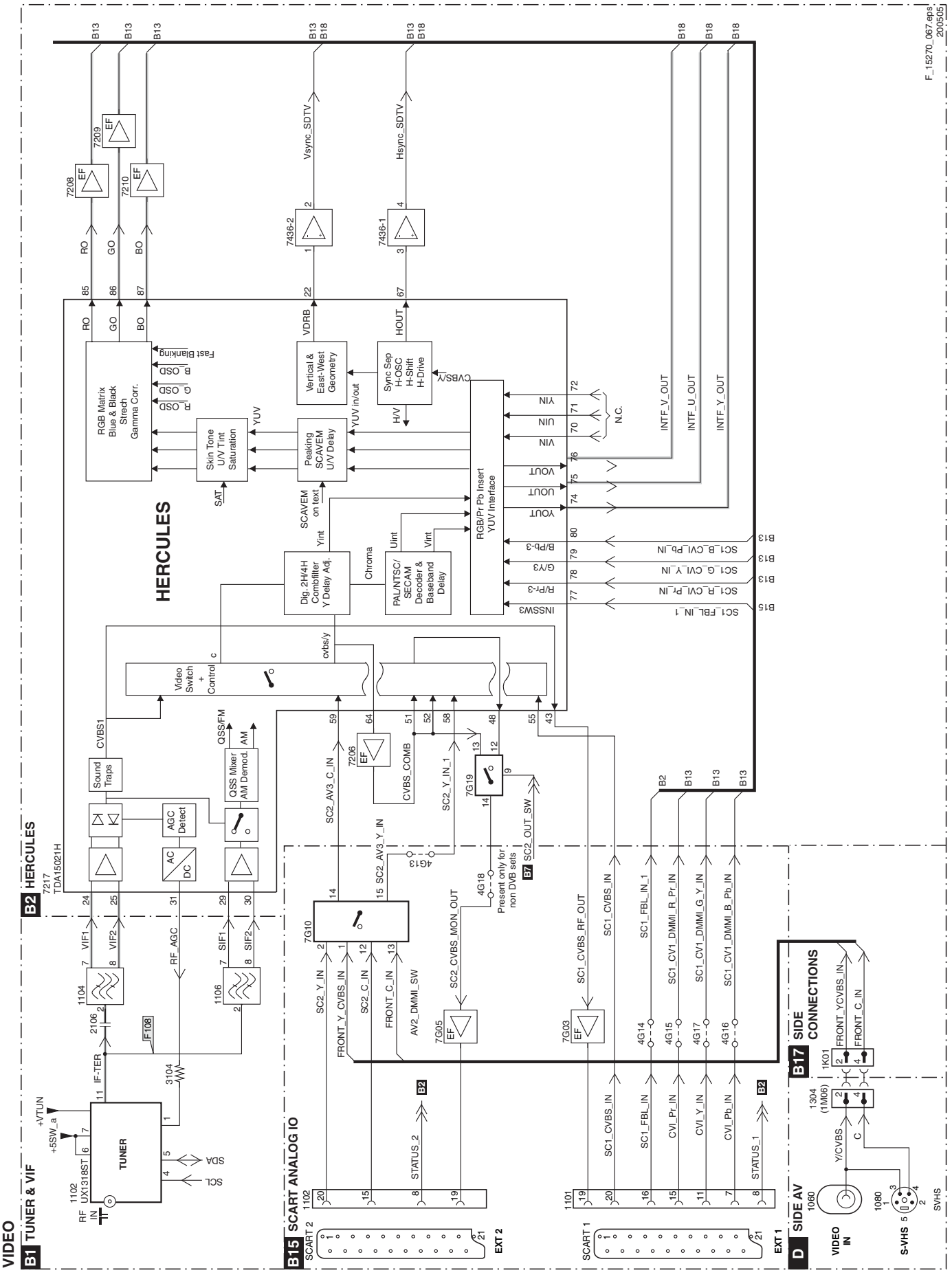


Figure 9-3 Block diagram video processing

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.

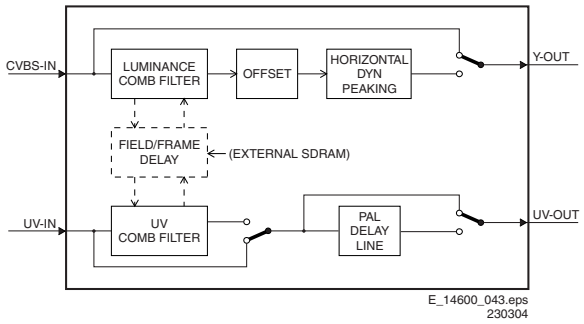


Figure 9-4 Columbus 2D/3D Comb Filter block diagram

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 monitors and televisions incorporating Picture in Picture, up to SXGA output resolutions. The Scaler controls the display processing in an LCD 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.

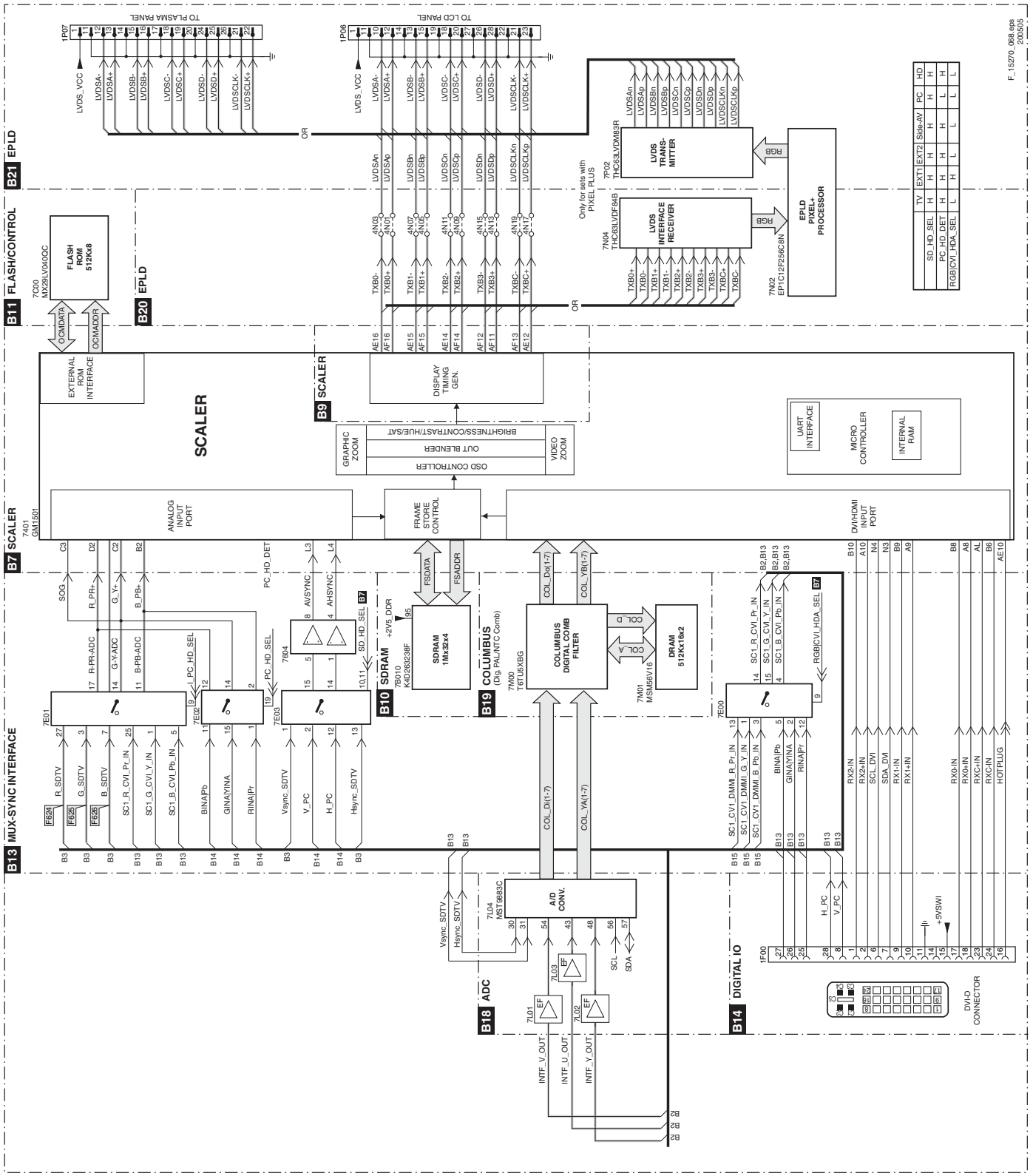


Figure 9-5 Block diagram scaler part

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

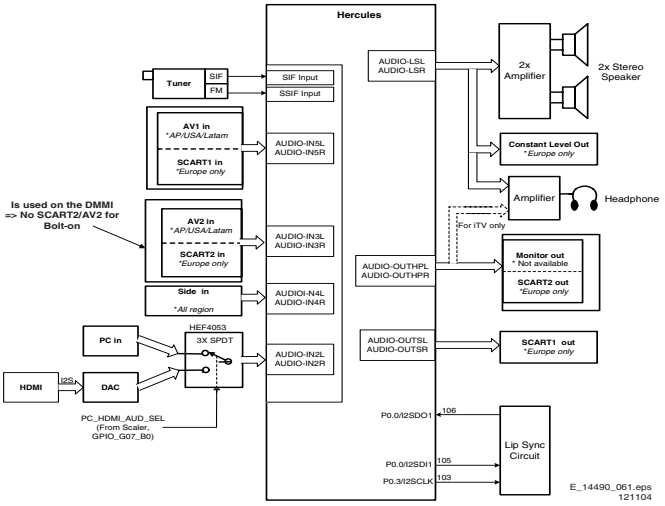


Figure 9-6 Block diagram audio processing

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 is a feature diversity for the Europe 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 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.

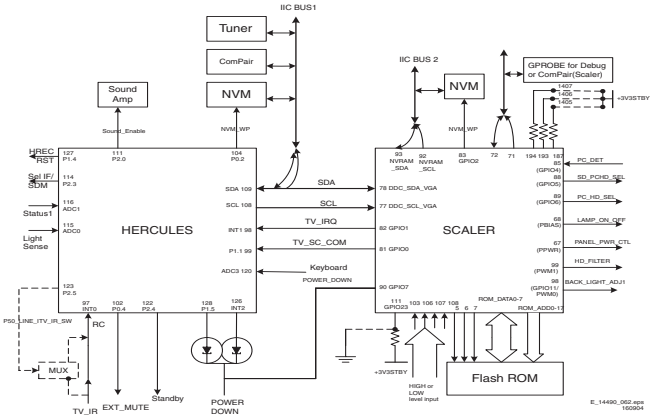


Figure 9-7 Micro Controller block diagram

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	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
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

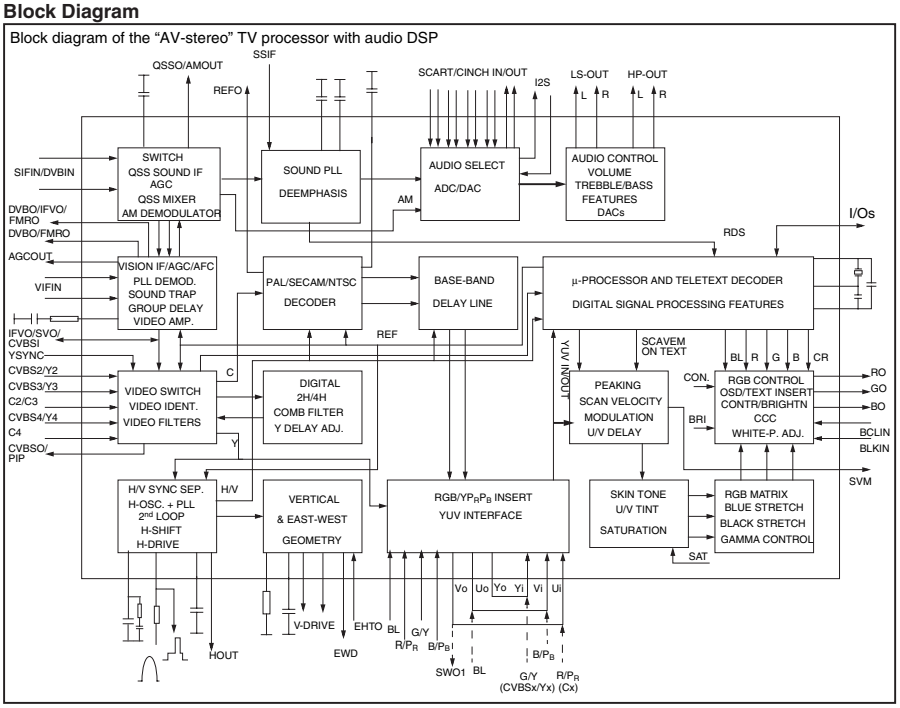
	Téléviseurs; This is a 21-pin connector used in EU, that carries various audio, video, and control signals (it is also called Péritel connector)
SCL	Serial CLock Signal on I^2C bus
SD	Standard Definition
SDA	Serial DAta Signal on I^2C bus
SDRAM	Synchronous DRAM
SECAM	SÉquence Couleur Avec Mémoire; Colour 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)
uP	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

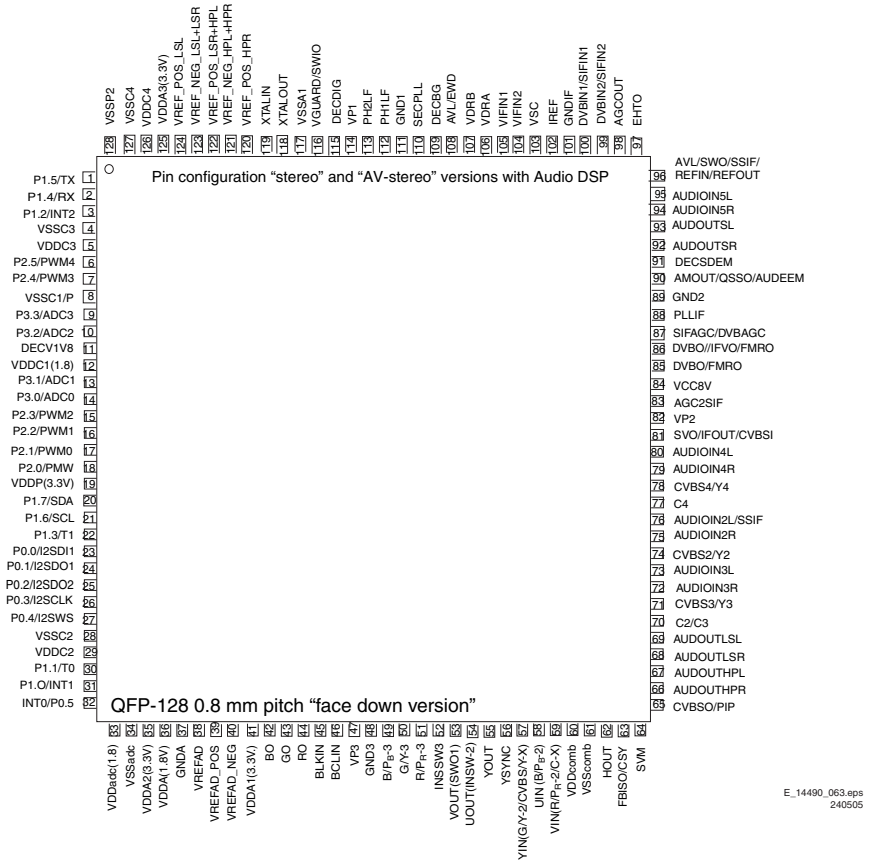


Figure 9-8 Internal block diagram and pin configuration

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

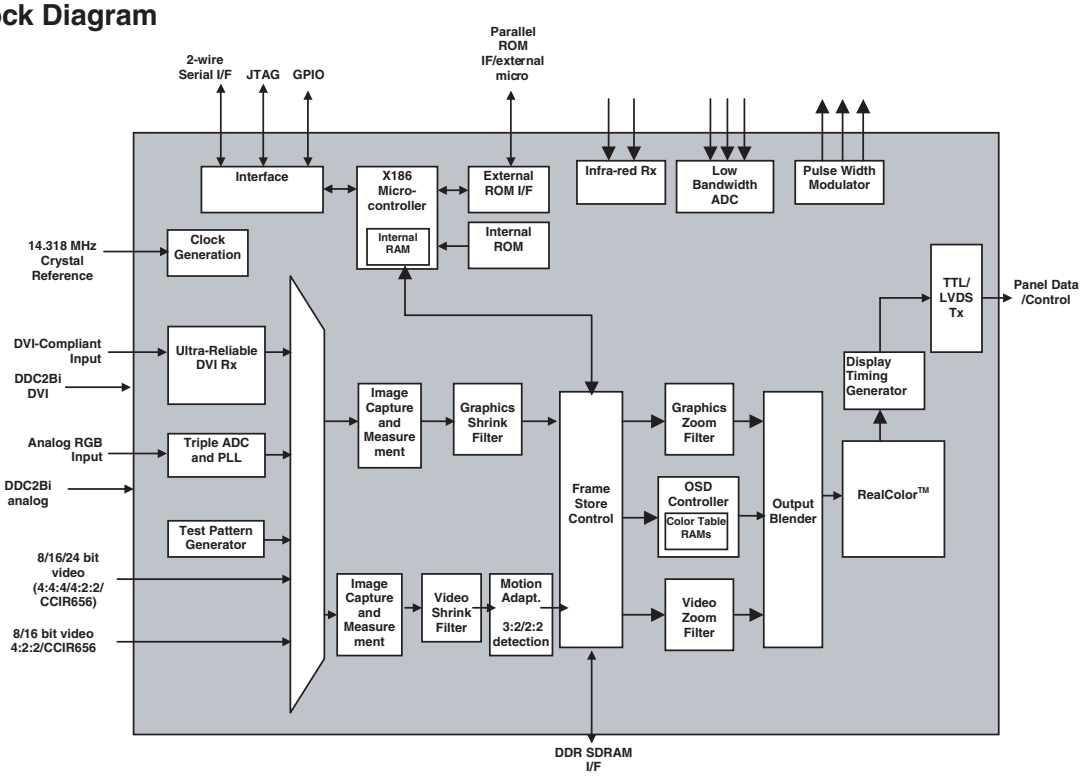
PPA Version 2.7

E_14600_059.eps
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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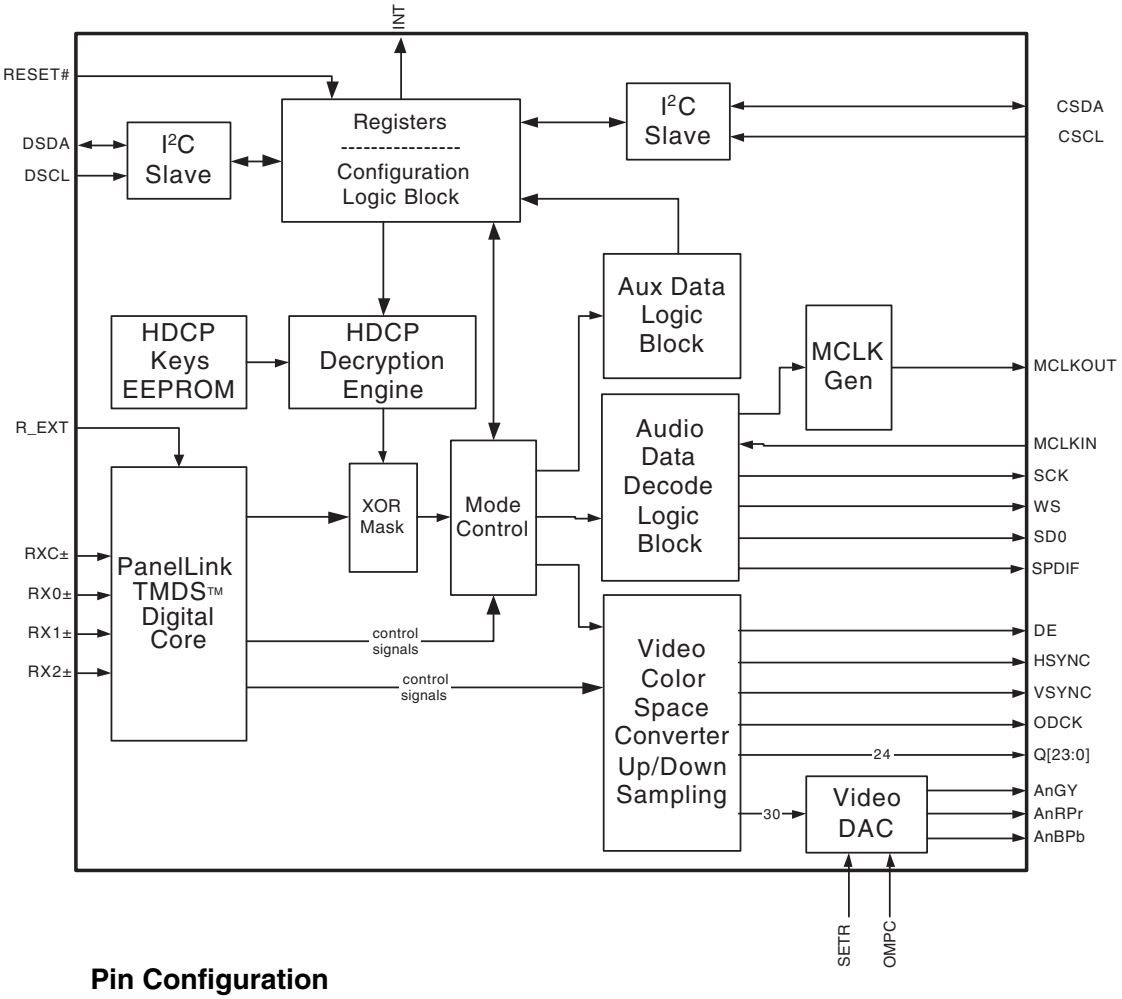
241204

Figure 9-10 Internal block diagram and pin configuration

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

Block Diagram



Pin Configuration

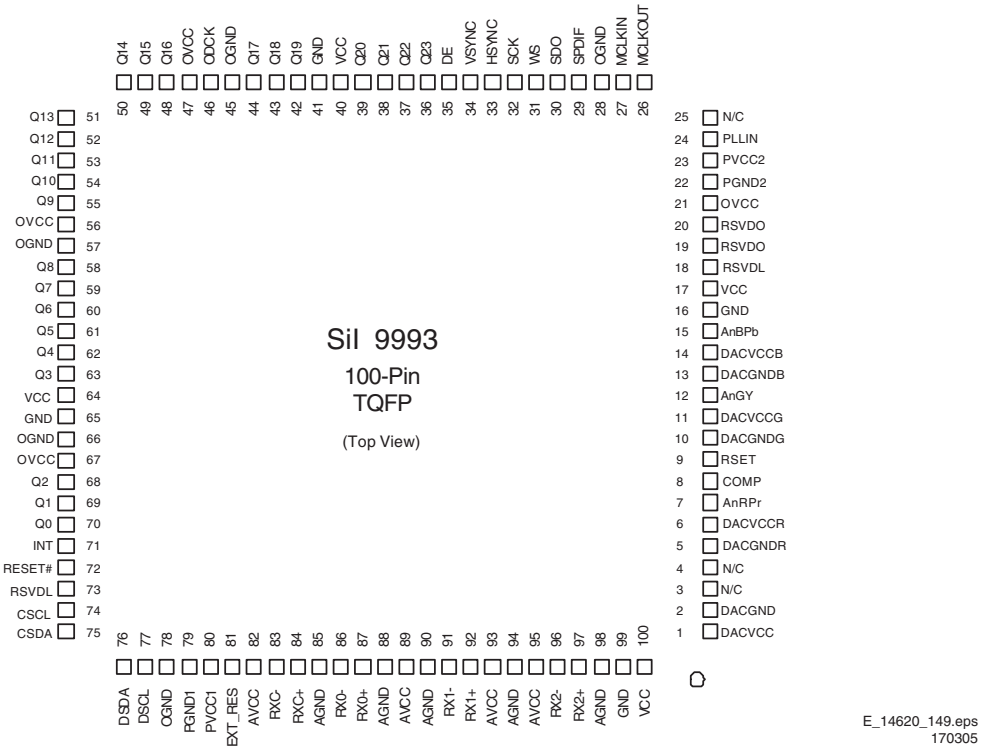


Figure 9-11 Internal block diagram and pin configuration

10. Spare Parts List

Set Levels per CTN

26PF3320/10

1099▲	9322 221 01682	LC260WX2-SL01 (LPL)
1099▲	9322 227 29682	QD26HL02
1099▲	9322 234 13682	LC260WX2-SLB2
1099▲	9322 235 05682	QD26HL02-REV02
1112	3139 188 89041	IR & LED Assy [J]
1114	3139 188 89031	Control Board [E]
1116	3139 188 89021	Side I/O Assy [G]
1174	3139 188 89051	Audio Amp. Assy [C]
1188▲	3122 137 23191	Power Supply Unit 26" [A]
8002	3104 311 08061	Cable 2p3/120/Inlet
8190	2422 076 00702	Cable DVI-I Cinch 3p
8520	3139 131 06081	Cable Inverter
8520	3139 131 06731	Cable 14p/280/14p
8684	3139 131 04421	Cable 3p/340/3p
8870	3104 311 09151	Cable 6p/400/6p
8903	3104 311 09141	Cable 4p/560
8J02	3139 131 05901	Cable 12p/280/12p
8J03	3104 311 10051	Cable 3p/100/3p Wh
8J04	3104 311 09251	Cable 9p/140/9p
8K01	3104 311 10041	Cable 12p/280/12p Wh
8K01	3139 131 05901	Cable 12p/280/12p
8P06	3139 131 06001	Cable 30p/140/30p

5213	2422 264 00536	Loudsp. 5W fullrange

Software (see Philips Service Website)

0606
0611
0626

26PF3320/10

1099	9322 221 27682	LCD QD26WL01
1099▲	9322 222 27682	LCD LC260W01
1114	3139 267 13391	Control Board [E]
1116	3139 267 14091	Side I/O Panel [G]
1174	3139 188 89051	Audio Amp. Assy [C]
1188▲	3122 137 23191	Power Supply Unit 26" [A]
8002	3104 311 08071	Cable 2P3/140
8190	2422 076 00702	Cable DVI-I Cinch 3p
8520	3139 131 05541	Cable 14p/140/14p
8540	3104 311 09461	Cable 6p/820/6p Wh
8540	3139 131 05051	Cable 06p/820/06P
8871	3139 131 06121	Cable 20p/100/20p
8903	3104 311 10551	Cable P/280 820/2x2
8903	3139 131 05771	Cable 04p/280
8J02	3104 157 02041	Cable 12p/340/12p Bk
8J03	3139 110 27651	Cable 3p/100/3p
8P06	3139 131 05941	Cable 30p/140/20p

5213	2422 264 00518	Loudsp. 8Ω 5W FR

Software (see Philips Service Website)

0606
0611

26PF4310/10

1099	9322 221 01682	LC260WX2-SL01 (LPL)
1099▲	9322 226 15682	LQ255T3LZ33
1099	9322 234 13682	LC260WX2-SLB2
1112	3139 188 89041	IR & LED Assy [J]
1114	3139 188 89031	Control Board [E]
1114	3139 188 89032	Keyboard Assy [E]
1116▲	3139 188 89021	Side I/O Assy [G]
1116▲	3139 188 89022	Side I/O Assy [G]
1150	3139 188 89961	Small Signal Board [B]
1174	3139 188 89051	Audio Amp. Assy [C]
1188▲	3122 137 23191	Power Supply Unit 26" [A]
8002	3104 311 08061	Cable 2p3/120/Inlet
8002	3104 311 08071	Cable 2P3/140
8190	2422 076 00659	Cable vga\1k5\Cinch RdGnBu
8520	3139 131 06081	Cable Inverter
8520	3139 131 06511	Cable 14p/280/14p
8684	3139 131 04421	Cable 3p/340/3p
8870	3104 311 09151	Cable 6p/400/6p
8903	3104 311 09141	Cable 4p/560
8903	3139 131 05311	Cable 04p/560
8J02	3139 131 05901	Cable 12p/280/12p
8J03	3104 311 10051	Cable 3p/100/3p Wh
8J03	3139 110 27651	Cable 3p/100/3p
8J04	3104 311 09251	Cable 9p/140/9p
8K01	3104 311 10041	Cable 12p/280/12p Wh
8K01	3139 131 05901	Cable 12p/280/12p
8P06	3139 131 06001	Cable 30p/140/30p

5213	2422 264 00536	Loudsp. 5W fullrange

Software (see Philips Service Website)

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32PF3320/10

1099▲	9322 227 30682	QD32HL02
1112▲	3139 188 89041	IR & LED Assy [J]
1114▲	3139 188 89031	Control Board [E]
1116▲	3139 188 89021	Side I/O Assy [G]
1174	3139 188 89051	Audio Amp. Assy [C]
1188	3122 137 23171	Power Supply Unit 32" [A]
8002▲	3104 311 08061	Cable 2p3/120/Inlet
8190	2422 076 00702	Cable DVI-I Cinch 3p
8520▲	3139 131 06511	Cable 14p/280/14p
8870	3104 311 09151	Cable 6p/400/6p
8903	3139 131 05321	Cable 4p/560
8J02	3139 131 05901	Cable 12p/280/12p
8J03	3139 110 27651	Cable 3p/100/3p
8J04	3104 311 09251	Cable 9p/140/9p
8K01	3104 311 10041	Cable 12p/280/12p Wh
8K01	3139 131 05901	Cable 12p/280/12p
8P06▲	3139 131 06971	Cable 30p/280/30p

5213	2422 264 00537	Loudsp. 4W 15W

Software (see Philips Service Website)

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32PF5320/10

1099▲	9322 217 44682	LC320W01-A6K1 (LPL)
1099▲	9322 226 16682	LQ315T3LZ33
1099▲	9322 229 23682	LC320W01-SL01
1099▲	9322 230 03682	LC320W01-SL06
1112	3139 188 89041	IR & LED Assy [J]
1114	3139 188 89031	Control Board [E]
1114	3139 188 89032	Keyboard Assy [E]
1116	3139 188 89021	Side I/O Assy [G]
1116	3139 188 89022	Side I/O Assy [G]
1174	3139 188 89051	Audio Amp. Assy [C]
1188▲	3122 137 23171	Power Supply Unit 32" [A]
8002	3104 311 08061	Cable 2p3/120/Inlet
8190	2422 076 00702	Cable DVI-I Cinch 3p
8520	3139 131 05641	Cable 12p/820 280/12p
8520	3139 131 06731	Cable 14p/280/14p
8520	3139 131 07611	Cable Inverter
8684	3139 131 04421	Cable 3p/340/3p
8870	3104 311 09151	Cable 6p/400/6p
8903	3139 131 05321	Cable 4p/560
8J02	3139 131 05901	Cable 12p/280/12p
8J03	3104 311 10051	Cable 3p/100/3p Wh
8J03	3139 110 27651	Cable 3p/100/3p
8J04	3104 311 09251	Cable 9p/140/9p
8K01	3104 311 10041	Cable 12p/280/12p Wh
8K01	3139 131 05901	Cable 12p/280/12p
8P06	3139 131 05471	Cable 30p/280/30p

5213	2422 264 00537	Loudsp. 4W 15W

Software (see Philips Service Website)

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32PF5420/10

1099▲	9322 226 16682	LQ315T3LZ33
1112	3139 188 89041	IR & LED Assy [J]
1114	3139 188 89031	Control Board [E]
1116	3139 188 89021	Side I/O Assy [G]
1116	3139 188 89022	Side I/O Assy [G]
1174	3139 188 89051	Audio Amp. Assy [C]
1188	3122 137 23171	Power Supply Unit 32" [A]
8002	3104 311 08061	Cable 2p3/120/Inlet
8520▲	3139 131 06731	Cable 14p/280/14p
8870	3104 311 09151	Cable 6p/400/6p
8903	3139 131 05321	Cable 4p/560
8J02▲	3139 131 05901	Cable 12p/280/12p
8J03	3104 311 10051	Cable 3p/100/3p Wh
8J03▲	3139 110 27651	Cable 3p/100/3p
8J04▲	3104 311 09251	Cable 9p/140/9p
8K01▲	3139 131 05901	Cable 12p/280/12p
8P06▲	3139 131 05471	Cable 30p/280/30p

5213	2422 264 00537	Loudsp. 4W 15W

Software (see Philips Service Website)

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32PF7320/10

1091	2422 033 00016	Sckt DVI/29p VGA/15p f
1092	2422 076 00659	Cable vga\1k5\Cinch RdGnBu
1099▲	9322 217 44682	LC320W01-A6K1 (LPL)
1099▲	9322 229 23682	LC320W01-SL01
1099▲	9322 230 03682	LC320W01-SL06
1112▲	3139 188 89041	IR & LED Assy [J]
1114	3139 188 89031	Control Board [E]
1116▲	3139 188 89021	Side I/O Assy [G]
1116▲	3139 188 89022	Side I/O Assy [G]
1150	3139 188 89011	Small Signal Board [B]
1174	3139 188 89051	Audio Amp. Assy [C]
1188▲	3122 137 23171	Power Supply Unit 32" [A]
8002	3104 311 08061	Cable 2p3/120/Inlet
8190	2422 076 00659	Cable vga\1k5\Cinch RdGnBu
8520	3139 131 05641	Cable 12p/820 280/12p
8520	3139 131 06511	Cable 14p/280/14p
8520	3139 131 07611	Cable Inverter
8684	3139 131 04421	Cable 3p/340/3p
8870	3104 311 09151	Cable 6p/400/6p
8J02	3139 131 05901	Cable 12p/280/12p
8J03	3104 311 10051	Cable 3p/100/3p Wh
8J03	3139 110 27651	Cable 3p/100/3p
8J04	3104 311 09251	Cable 9p/140/9p
8K01	3104 311 10041	Cable 12p/280/12p Wh
8K01	3139 131 05901	Cable 12p/280/12p
8P06	3139 131 05471	Cable 30p/280/30p

5213	2422 264 00537	Loudsp. 4W 15W

Software (see Philips Service Website)

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Small Signal Board [B]

Various

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 Cinch 1p f
1G01	4822 265 10703	Socket scart 21p
1G02	4822 265 10703	Socket scart 21p
1J02	2422 025 10772	Connector 12p m
1J03	2422 025 10768	Connector 3p m
1J04	2422 025 10769	Connector 9p m
1K00	2422 025 08149	Connector 6p m
1K01	2422 025 10772	Connector 12p m
1K02	2422 025 10768	Connector 3p m
1K03	2422 025 14531	Connector 20p f
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
1P06	2422 025 18772	Connector 30p m
8J03	3139 110 27651	Cable 3p/100/3p

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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 00183	2.2µF 10% 6.3V 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	2022 031 00373	470µF 20% 16V
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
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
2613	3198 017 41050	1µF 10V 0603
2614	3198 035 71040	100nF 10% 16V 0402
2615	2022 031 00373	470µF 20% 16V
2616	2020 552 00183	2.2µF 10% 6.3V 0603
2617	2020 552 00183	2.2µF 10% 6.3V 0603
2618	2022 031 00373	470µF 20% 16V
2619	2020 552 96738	47µF 6.3V
2701	2238 869 15101	100pF 5% 50V 0402
2704	4822 124 23002	10µF 16V
2716	2020 012 00028	470µF 20% 16V
2730	2020 552 96656	10µF 20% 25V 1210
2731	2022 031 00373	470µF 20% 16V
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	2022 031 00373	470µF 20% 16V
2738	4822 124 80151	47µF 16V
2739	4822 124 80151	47µF 16V
2750	2020 552 00183	2.2µF 10% 6.3V 0603
2751	3198 035 71040	100nF 10% 16V 0402
2752	4822 124 80151	47µF 16V
2753	2022 031 00373	470µF 20% 16V
2755	3198 035 14720	4.7nF 5% 25V 0402
2756	3198 035 02210	220pF 5% 50V 0402
2756	3198 035 04710	470pF 50V 0402
2757	2022 031 00373	470µF 20% 16V
2758	2022 031 00373	470µF 20% 16V
2760	2020 552 96671	1µF 10% 25V
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
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 00183	2.2µF 10% 6.3V 0603
2F16	2020 552 00183	2.2µF 10% 6.3V 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 00183	2.2µF 10% 6.3V 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 00183	2.2µF 10% 6.3V 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 00183	2.2µF 10% 6.3V 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 00183	2.2µF 10% 6.3V 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
2J17	2238 869 15101	100pF 5% 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
2J35	2020 552 96618	1nF 10% 50V 0402
2J36	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 00183	2.2µF 10% 6.3V 0603
2K10	2238 869 15101	100pF 5% 50V 0402
2K11	2238 869 15101	100pF 5% 50V 0402
2K12	2020 552 00183	2.2µF 10% 6.3V 0603
2K13	2238 869 15101	100pF 5% 50V 0402
2K14	2238 869 15101	100pF 5% 50V 0402
2K15	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 00183	2.2µF 10% 6.3V 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
2M67	4822 117 13605	Jumper 0402
2M68	4822 116 52175	100Ω 5% 0.5W
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 00183	2.2µF 10% 6.3V 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 00183	2.2µF 10% 6.3V 0603
2P18	2020 552 00183	2.2µF 10% 6.3V 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 00183	2.2µF 10% 6.3V 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⌐

3101	4822 051 30101	100Ω 5% 0.062W
3102	4822 051 30101	100Ω 5% 0.062W
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% 0.01W 0402
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
3282	4822 051 30151	150Ω 5% 0.062W
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
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
3615	4822 117 13606	10kΩ 5% 0.01W 0402
3618	4822 117 13601	22kΩ 5% 0402
3623	3198 031 04730	47Ω 5% 0402
3625	3198 031 03320	3.3kΩ 5% 0402
3627	4822 117 13601	22kΩ 5% 0402
3630	4822 117 13597	330Ω 5% 0.01W 0402
3631	4822 117 13597	330Ω 5% 0.01W 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
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
3755	4822 117 13606	10kΩ 5% 0.01W 0402
3758	3198 031 01530	15kΩ 5% 0.01W 0402
3759	3198 031 01230	12kΩ 5% 0402
3760	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
3A02	4822 117 13548	1kΩ 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% 0.01W 0402
3E14	4822 117 13597	330Ω 5% 0.01W 0402
3E15	4822 117 13597	330Ω 5% 0.01W 0402
3E16	4822 117 13597	330Ω 5% 0.01W 0402
3E17	4822 117 13597	330Ω 5% 0.01W 0402
3E18	4822 117 13597	330Ω 5% 0.01W 0402
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
3J03	3198 031 06890	68Ω 5% 0402
3J04	3198 031 06890	68Ω 5% 0402
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
3K08	3198 031 06890	68Ω 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% 0.01W 0402
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
3L38	4822 117 13605	Jumper 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%
3M05	3198 031 14710	4 x 470Ω 5% 1206
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
3S00	4822 117 12925	47kΩ 1% 0.063W 0603
3S03	4822 117 12925	47kΩ 1% 0.063W 0603
4201	4822 117 13605	Jumper 0402
4202	4822 117 13605	Jumper 0402
4203	4822 117 13605	Jumper 0402
4206	4822 051 20008	Jumper 0805
4211	4822 117 13605	Jumper 0402
4212	4822 117 13605	Jumper 0402
4436	4822 117 13605	Jumper 0402
4437	4822 117 13605	Jumper 0402
4440	4822 117 13605	Jumper 0402
4441	4822 117 13605	Jumper 0402
4801	4822 117 13605	Jumper 0402
4A05	4822 117 13605	Jumper 0402
4A06	4822 117 13605	Jumper 0402
4K04	4822 117 13605	Jumper 0402
4K05	4822 117 13605	Jumper 0402
4K06	4822 117 13605	Jumper 0402
4L02	4822 117 13605	Jumper 0402
4L05	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

5101	3198 018 33970	0.39µH 10% 0805
5102	4822 157 71334	0.68µH 5% 1008
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	1000µH 20% 7032
5216	4822 157 11716	Bead 30Ω at 100MHz
5218	2422 549 45333	Bead 120Ω at 100MHz
5700	2422 549 45333	Bead 120Ω at 100MHz
5730	2422 535 94134	10µH 20% 0805
5733	2422 536 00689	220µH 20%
5735	2422 536 00667	1000µH 20% 7032
5737	2422 535 94134	10µH 20% 0805
5738	2422 549 45333	Bead 120Ω at 100MHz
5752	2422 535 94134	10µH 20% 0805
5753	2422 536 00689	220µH 20%
5753	2422 536 01178	470µH 20% 10145
5754	2422 535 94134	10µH 20% 0805
5756	2422 549 45333	Bead 120Ω at 100MHz
5757	2422 549 45333	Bead 120Ω at 100MHz
5900	2422 549 45333	Bead 120Ω at 100MHz
5901	2422 549 45333	Bead 120Ω at 100MHz
5902	2422 549 45333	Bead 120Ω at 100MHz
5903	2422 549 45333	Bead 120Ω at 100MHz
5904	2422 549 45333	Bead 120Ω at 100MHz
5905	2422 549 45333	Bead 120Ω at 100MHz
5906	2422 549 45333	Bead 120Ω at 100MHz
5907	2422 549 45333	Bead 120Ω at 100MHz
5908	2422 549 45333	Bead 120Ω at 100MHz
5909	2422 549 45333	Bead 120Ω at 100MHz
5910	2422 549 45333	Bead 120Ω at 100MHz
5911	2422 549 45333	Bead 120Ω at 100MHz
5C00	2422 549 45333	Bead 120Ω at 100MHz
5E00	2422 549 45333	Bead 120Ω at 100MHz
5E01	2422 549 45333	Bead 120Ω at 100MHz
5E02	2422 549 45333	Bead 120Ω at 100MHz
5E03	2422 549 45333	Bead 120Ω at 100MHz
5F00	2422 549 45333	Bead 120Ω at 100MHz
5F01	2422 549 45333	Bead 120Ω at 100MHz
5F02	2422 549 45333	Bead 120Ω at 100MHz
5F03	2422 549 45333	Bead 120Ω at 100MHz
5G02	2422 549 45333	Bead 120Ω at 100MHz
5J01	2422 549 42896	Bead 120Ω 100MHz
5J02	2422 549 42896	Bead 120Ω 100MHz
5J03	2422 549 45333	Bead 120Ω at 100MHz
5L00	2422 549 45333	Bead 120Ω at 100MHz
5L01	2422 549 45333	Bead 120Ω at 100MHz
5L02	2422 549 45333	Bead 120Ω at 100MHz
5M00	2422 549 45333	Bead 120Ω at 100MHz
5M01	2422 549 45333	Bead 120Ω at 100MHz
5M02	2422 549 45333	Bead 120Ω at 100MHz
5M03	2422 549 45333	Bead 120Ω at 100MHz
5M04	2422 549 45333	Bead 120Ω at 100MHz
5M05	2422 549 45333	Bead 120Ω at 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
6733	9322 128 70685	SMSS14
6735	5322 130 34337	BAV99
6736	9340 548 71115	PDZ33B
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

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	9352 780 22557	TDA15021H/N1B91 (*)
7217	9352 803 95557	TDA15031H/N1C911ZZ
7219	9322 164 91668	CD74HC4053M
7430	4822 130 11155	PDTC114ET
7436	9322 221 97668	SN74LVC14APW
7601	9322 183 05668	TS482ID
7602	9351 742 70118	74HC08PW
7605	9340 310 50215	PDTA143ET
7606	9340 425 20115	BC847BS
7607	3198 010 42310	BC847BW
7730	9322 191 07668	L5970D
7735	4822 130 42804	BC817-25
7738	9322 163 24668	L78M08CDT
7752	5322 209 90529	MC34063AD
7754	9322 214 00668	SI2301BDS-E3
7755	4822 130 11155	PDTC114ET
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
7B01	9322 214 42671	K4D263238F-QC50
7B01	9322 235 50671	K4D263238I-UC50
7C00	9322 229 61671	MX29LV040CQC-70G (*)
7C01	9322 189 01668	AT24C32AN
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	9322 164 91668	CD74HC4053M
7E04	9322 221 97668	SN74LVC14APW
7E05	9322 221 97668	SN74LVC14APW
7F03	9322 206 24668	M24C02-WMN6P (*)
7G03	3198 010 42310	BC847BW
7G05	3198 010 42310	BC847BW
7G10	9322 164 91668	CD74HC4053M
7L01	3198 010 42310	BC847BW
7L02	3198 010 42310	BC847BW
7L03	3198 010 42310	BC847BW
7L04	9322 212 77672	MST9883C-LF-110
7L05	4822 116 52175	100Ω 5% 0.5W
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
7M03	9322 170 14668	LF15ABDT
7N01	9322 210 01668	EPCS4SI8N
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
(*)		Empty device (no SW)

Audio Amplifier Panel [C]

Various

1001	2422 025 09406	Connector 4p m
1002	2422 025 10769	Connector 9p m
1003	2422 025 10768	Connector 3p m

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2001	2020 024 00023	220µ 35V
2002	2238 586 59812	100nF 20% 50V 0603
2003	2238 586 59812	100nF 20% 50V 0603
2004	2020 024 00023	220µ 35V
2006	2020 552 94427	100pF 5% 50V
2007	2020 552 94427	100pF 5% 50V
2008	2020 552 94427	100pF 5% 50V
2009	2020 552 94427	100pF 5% 50V
2010	2238 586 59812	100nF 20% 50V 0603
2011	4822 051 30562	5.6kΩ 5% 0.063W 0603
2012	2020 024 00023	220µ 35V
2013	4822 126 13879	220nF +80-20% 16V
2014	4822 126 14238	2.2nF 50V 0603
2015	4822 126 14238	2.2nF 50V 0603
2016	4822 126 14238	2.2nF 50V 0603
2017	2238 586 59812	100nF 20% 50V 0603
2018	3198 017 31530	15nF 20% 50V 0603
2019	3198 037 52280	2.2µ 50V
2020	4822 126 13883	220pF 5% 50V
2021	4822 126 13883	220pF 5% 50V
2022	4822 126 14076	220nF +80/-20% 25V
2023	4822 121 51252	470nF 5% 63V
2024	2020 012 00036	1000µ 25V
2026	4822 126 13879	220nF +80-20% 16V
2027	2238 586 59812	100nF 20% 50V 0603
2028	2238 586 59812	100nF 20% 50V 0603
2029	2020 024 00023	220µ 35V
2030	4822 126 14238	2.2nF 50V 0603
2031	4822 126 14238	2.2nF 50V 0603
2032	4822 126 14238	2.2nF 50V 0603
2033	4822 126 13879	220nF +80-20% 16V
2034	2238 586 59812	100nF 20% 50V 0603
2035	4822 126 13883	220pF 5% 50V
2036	4822 126 13883	220pF 5% 50V
2037	3198 037 52280	2.2µ 50V
2038	3198 017 31530	15nF 20% 50V 0603
2039	2020 552 96656	10µF 20% 25V 1210
2040	4822 126 13879	220nF +80-20% 16V
2041	2020 552 96656	10µF 20% 25V 1210
2042	4822 121 51252	470nF 5% 63V
2043	2020 012 00036	1000µ 25V
2044	2238 586 59812	100nF 20% 50V 0603
2045	4822 126 14076	220nF +80/-20% 25V
2047	3198 017 41050	1µF 10V 0603
2048	2238 586 59812	100nF 20% 50V 0603
2049	2020 552 96305	4.7µF 20-80% 10V
2051	2020 552 94427	100pF 5% 50V
2052	4822 126 14238	2.2nF 50V 0603
2053	4822 126 14238	2.2nF 50V 0603
2054	4822 126 14238	2.2nF 50V 0603
2055	4822 126 14238	2.2nF 50V 0603
2060	4822 126 14238	2.2nF 50V 0603
2061	4822 126 14238	2.2nF 50V 0603
2062	3198 017 34730	47nF 16V 0603
2063	3198 017 34730	47nF 16V 0603
2064	5322 126 11579	3.3nF 10% 63V
2065	5322 126 11579	3.3nF 10% 63V

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3001	5322 117 11726	10Ω 5%
3002	4822 051 30562	5.6kΩ 5% 0.063W 0603
3003	4822 051 30223	22kΩ 5% 0.062W
3004	4822 051 30103	10kΩ 5% 0.062W
3006	4822 051 30102	1kΩ 5% 0.062W
3007	4822 117 12925	47kΩ 1% 0.063W 0603
3008	4822 051 30222	2.2kΩ 5% 0.062W
3009	4822 117 12891	220kΩ 1%
3010	4822 051 30682	6.8Ω 5% 0.062W
3011	4822 051 30222	2.2kΩ 5% 0.062W
3012	4822 051 20109	10Ω 5% 0.1W
3013	4822 051 30103	10kΩ 5% 0.062W
3014	2322 762 60229	22Ω 5% 1005
3019	4822 051 30103	10kΩ 5% 0.062W
3020	4822 051 30103	10kΩ 5% 0.062W
3021	4822 051 30472	4.7Ω 5% 0.062W
3022	9965 000 23109	22Ω 5% 0603
3023	4822 051 30102	1kΩ 5% 0.062W
3024	4822 117 12925	47kΩ 1% 0.063W 0603
3025	4822 051 30222	2.2kΩ 5% 0.062W
3026	4822 051 30682	6.8Ω 5% 0.062W
3027	4822 117 12891	220kΩ 1%
3028	4822 051 30103	10kΩ 5% 0.062W
3029	4822 051 30222	2.2kΩ 5% 0.062W
3030	4822 051 20109	10Ω 5% 0.1W
3031	2322 762 60229	22Ω 5% 1005
3032	4822 051 30392	3.9Ω 5% 0.063W 0603
3033	4822 051 30103	10kΩ 5% 0.062W
3034	4822 051 30392	3.9Ω 5% 0.063W 0603
3037	4822 051 30392	3.9Ω 5% 0.063W 0603
3039	4822 051 30103	10kΩ 5% 0.062W
3040	4822 051 30103	10kΩ 5% 0.062W
3041	4822 051 30103	10kΩ 5% 0.062W
3042	4822 051 30103	10kΩ 5% 0.062W
3043	4822 051 30103	10kΩ 5% 0.062W
3046	4822 051 30102	1kΩ 5% 0.062W
3047	4822 051 30102	1kΩ 5% 0.062W

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5001	2422 549 44197	Bead 220Ω at 100MHz
5002	3198 018 52280	2.2µH 10% 0603
5003	3198 018 52280	2.2µH 10% 0603
5004	3198 018 52280	2.2µH 10% 0603
5005	3198 018 52280	2.2µH 10% 0603
5006	2422 536 01034	33µH
5007	2422 536 01034	33µH

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6002	4822 130 80622	BAT54
6003	4822 130 80622	BAT54

7000	9352 760 45118	TDA8931T/N1
7000	9352 800 09118	TDA8931T/N1
7001	9352 760 45118	TDA8931T/N1
7001	9352 800 09118	TDA8931T/N1
7004	9322 209 56685	TL431ACDBV

Keyboard Control Panel [E]

Various

1309	4822 276 13775	Switch 1p 0.1A 12V
1310	4822 276 13775	Switch 1p 0.1A 12V
1311	4822 276 13775	Switch 1p 0.1A 12V
1312	4822 276 13775	Switch 1p 0.1A 12V
1313	4822 276 13775	Switch 1p 0.1A 12V
1314	4822 276 13775	Switch 1p 0.1A 12V
1684	4822 267 10459	Connector 3p
8684	3139 131 04421	Cable 3p/340/3p

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3318	4822 051 30151	150Ω 5% 0.062W
3319	4822 051 30391	390Ω 5% 0.062W
3320	3198 021 31820	1.8kΩ 5% 0.062W 0603
3321	4822 117 12968	820Ω 5% 0.62W
3322	4822 051 30008	Jumper 0603
3323	4822 051 30008	Jumper 0603
3324	4822 051 30561	560Ω 5% 0.062W

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6306	4822 130 11148	UDZ4.7B

Side I/O Panel [G]

Various

1301	2422 025 14531	Connector 20p f
1301	4822 267 10484	YKF51-5359
1302	2422 025 10738	Connector 6p m
1302	2422 026 05655	Cinch 3p f RdWhYe
1303	2422 026 05059	Connector Phone
1304	2422 025 10772	Connector 12p m
1306	2422 026 05059	Connector Phone
1307	4822 267 10484	YKF51-5359
1308	2422 026 05513	Soc phone 1p

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2301	3198 017 41050	1µF 10V 0603
2302	4822 126 11785	47pF 5% 50V 0603
2302	4822 126 14241	330pF 0603 50V
2303	3198 017 41050	1µF 10V 0603
2304	4822 126 11785	47pF 5% 50V 0603
2304	4822 126 14241	330pF 0603 50V
2305	4822 126 14241	330pF 0603 50V
2306	4822 126 14241	330pF 0603 50V
2307	4822 126 14241	330pF 0603 50V
2308	5322 126 11583	10nF 10% 50V 0603
2309	5322 126 11583	10nF 10% 50V 0603
2310▲	3198 017 41050	1µF 10V 0603
2326	3198 017 41050	1µF 10V 0603

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3301	4822 051 30101	100Ω 5% 0.062W
3301	4822 051 30759	75Ω 5% 0.062W
3302	4822 051 30109	10Ω 5% 0.062W
3302	4822 051 30759	75Ω 5% 0.062W
3303	4822 051 30109	10Ω 5% 0.062W
3303	4822 051 30221	220Ω 5% 0.062W
3304	4822 051 30223	22kΩ 5% 0.062W
3304	4822 051 30759	75Ω 5% 0.062W
3305	4822 117 12925	47kΩ 1% 0.063W 0603
3305	4822 117 13632	100kΩ 1% 0603 0.62W
3306	4822 051 30153	15kΩ 5% 0.062W
3306	4822 051 30759	75Ω 5% 0.062W
3307	4822 051 30102	1kΩ 5% 0.062W
3307	4822 051 30223	22kΩ 5% 0.062W
3308	4822 051 30153	15kΩ 5% 0.062W
3308	4822 117 12925	47kΩ 1% 0.063W 0603
3309▲	4822 051 30759	75Ω 5% 0.062W
3310▲	4822 051 30563	56kΩ 5% 0.062W
3311	4822 051 30103	10kΩ 5% 0.062W
3325	4822 051 30759	75Ω 5% 0.062W
3326	4822 051 30102	1kΩ 5% 0.062W
3327	4822 117 13632	100kΩ 1% 0603 0.62W
3328	4822 051 30101	100Ω 5% 0.062W
3329	4822 051 30563	56kΩ 5% 0.062W
4301	4822 051 30008	Jumper 0603
9390	3198 036 90010	Wire 0.58mm
9391	3198 036 90010	Wire 0.58mm
9392	3198 036 90010	Wire 0.58mm
9393	3198 036 90010	Wire 0.58mm

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6301	9322 129 41685	BZM55-C12
6302	9322 129 41685	BZM55-C12
6303	9322 129 41685	BZM55-C12
6304	9322 129 41685	BZM55-C12
6305	9322 129 41685	BZM55-C12
6306	9322 129 41685	BZM55-C12
6307	9322 129 41685	BZM55-C12
6308	9322 129 41685	BZM55-C12
6310	4822 130 11416	PDZ6.8B
6311	4822 130 11416	PDZ6.8B

7301▲	4822 130 60373	BC856B
7326	4822 130 60373	BC856B

IR/LED/Light-sensor Panel [J]

Various

1540	2422 025 10738	Connector 6p m
1870	4822 265 31067	Connector 7p m

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2540	4822 124 41643	100µF 20% 16V
2541	3198 017 41050	1µF 10V 0603
2801	2020 552 96637	10µF 10% 6.3V 0805
2802	2020 552 96637	10µF 10% 6.3V 0805
2803	3198 017 41050	1µF 10V 0603

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3540	4822 051 30331	330Ω 5% 0.062W
3542	4822 051 30221	220Ω 5% 0.062W
3544	4822 051 30332	3.3Ω 5% 0.062W
3547	3198 021 32250	2.2MΩ 5% 0603
3801	4822 051 30332	3.3Ω 5% 0.062W

3802	4822 051 30331	330Ω 5% 0.062W
3803	4822 051 30221	220Ω 5% 0.062W
3809	3198 021 32250	2.2MΩ 5% 0603

6540	9322 192 35676	SPR-325MVW
6541	9322 207 16667	TSOP34836LL1B
6801	9322 192 35676	SPR-325MVW
6803	4822 130 11564	UDZ3.9B

7540	4822 130 60373	BC856B
7541	5322 130 60159	BC846B
7542	5322 130 60159	BC846B
7543	9322 190 43682	BPW34
7801	4822 130 60373	BC856B
7802	9322 207 16667	TSOP34836LL1B
7803	5322 130 60159	BC846B
7804	5322 130 60159	BC846B
7808	9322 190 43682	BPW34

11. Revision List

Manual xxxx xxx xxxx.0
- First release.

Manual xxxx xxx xxxx.1
- Corrected several errors in the text, drawings and spare parts list.

Manual xxxx xxx xxxx.2
- Corrected several errors in the text, drawings and spare parts list.

Manual xxxx xxx xxxx.3
- Added Panel settings table.
- Corrected several errors in the text, drawings and spare parts list.

Manual xxxx xxx xxxx.4
- **Chapter 6 & 7:** Added SSB 61411.
- **Chapter 10:** Spare Parts List updated.