

Service
Service
Service



Service Manual



Contents	Page
1 Technical Specifications and Connection Facilities	2
2 Safety Information, General Notes & Lead Free Requirements	4
3 Directions for Use	6
4 Mechanical Instructions	9
5 Upgrade Software & Repair Chart	12
6 Block Diagrams, Waveforms, Wiring Diagram	23
Overall block diagram	23
Control block diagram	24
Wiring diagram	25
Waveforms of Analog Board	26
Waveforms of Digital Board	27
Test Point Overview for Analog Board	28
Test Point Overview for Digital Board	29
7 Circuit Diagram and PWB Layout	30
Analog: Frontend Video (FV)	30
Analog: Video In / Out (IOV)	31
Analog: Audio In / Out (IOA)	32
Analog: Power Supply (PS)	33
Analog: Multi Sound Processing (MSP)	34
Analog: Audio Converter (DAC_ADC)	35
Analog: Digital In / Out 1 (DIGIO 1)	36
Analog: Control Unit (CU)	37
Layout: Analog-Main Part (Top View)	38
Layout: Analog-Main Part (Bottom View)	39
Front: Front Panel - Display	40

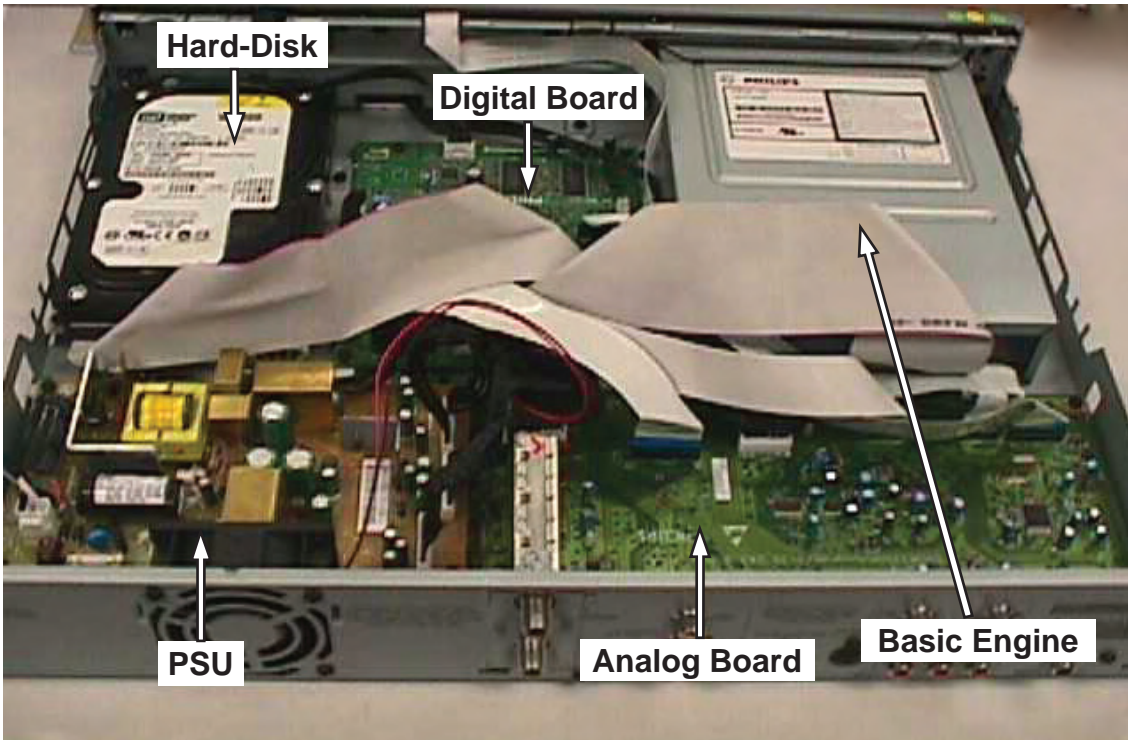
Contents	Page
Front: Front Panel - Audio/Video In	41
Layout: Front Panel (Top Copper Pattern)	42
Layout: Front Panel (Bottom Copper Pattern)	42
Front: Standby	43
Layout: Standby (Top View)	43
Layout: Standby (Bottom View)	43
Digital: Back-end Processor	44
Digital: Memory	45
Digital: IEEE 1394 Physical Layer	46
Digital: Video Input Processor	47
Digital: Interfaces	48
Layout: Digital-Main Part (Top View)	49
Layout: Digital-Main Part (Bottom View)	50
8 Circuit- and IC Description	51
PSU Board	51
Front Board	52
Analog Board	52
Digital Board	56
Power Supply Unit	59
IC Description	59
Analog Board	59
Digital Board	64
9 Exploded View & Spare Parts List	75
Exploded View of the set	75
Spare Parts List	76

©Copyright 2005 Philips Consumer Electronics B.V. Eindhoven, The Netherlands.
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of Philips.



1. Technical Specifications and Connection Facilities

1.1 PCB Locations



1.2 Diversity Matrix

	DVDR3350H	DVDR3360H	DVDR3370H
HDD Capacity	80GB	160GB	250GB

1.3 General:

Power Supply : 127V /37
 : 110V - 240V /55
 : 220V - 240V /75/97
 Consumption : 25 W (typical)
 Standby power consumption : < 3 W

1.4 RF Tuner

Test equipment: Fluke 54200 TV Signal generator
 Test streams: Philips Standard test pattern

1.4.1 System

NTSC-M

1.4.2 RF - Loop Through:

Frequency range : 45 - 860 MHz
 Gain: (ANT IN - ANT OUT) : ≥ -6dB
 Radio Interference / max. input voltage, at 75Ω, 3 tone method (≤ -40dB) : no limit

1.4.3 Modulator:

Video Modulation : 80%±15%
 Frequency response : 0 ± 3dB, 0...4.2MHz
 Audio Modulation 1kHz tone : ± 12kHz, tol. ± 4kHz

1.4.4 Receiver:

PLL tuning with AFC for optimum reception
 Frequency range : 55 - 805 MHz
 Sensitivity at 40 dB S/N : ≤ 60dBμV at 75 Ω (video unweighted)

1.4.5 Video Performance:

Channel 25 / 503,25 MHz,
 Test pattern: standard test pattern.
 RF Level 74dBμV
 Measured on Cinch Out
 Frequency response : 0.1 - 3.58 MHz -1 ± 3dB

1.4.6 Audio Performance:

Audio Performance Analogue - HiFi:

Frequency response at Cinch (L+R) output : 100 Hz - 10 kHz / 0 ± 3dB
 S/N according to DIN 45405, 7, 1967 and PHILIPS standard test pattern video signal : ≥ 45dB
 Harmonic distortion (1 kHz, ± 25 kHz deviation) : ≤ 1.5%

1.4.7 Tuning

Automatic Search Tuning

Scanning time without antenna : typ. 3 min.
 Stop level (vision carrier) : ≥ 37dBμV
 Maximum tuning error during operation : ± 100 kHz

Manual Tuning

Manual selection in "STORE" mode

1.5 Analogue Inputs / Outputs

1.5.1 External In (Rear)

Video - Y/C (Hosiden)

according IEC 933-5

Superimposed DC-level on pin 4 (load ≥ 100kΩ):
 < 2.4V is detected as 4:3 aspect ratio
 > 3.5V is detected as 16:9 aspect ratio

Input voltage Y : 1 Vpp ± 3dB
 Input impedance Y : 75 Ω
 Input voltage C : burst 300 mVpp ± 3dB
 Input impedance C : 75 Ω

Video Cinch

Input voltage : 1 Vpp ± 3dB
 Input impedance : 75 Ω

Audio Cinch

Input voltage : 2.2 Vrms max.
 Input impedance : > 10kΩ

1.5.2 Audio/Video Front Input Connectors

Audio

Input voltage : 2 Vrms max.
 Input impedance : > 10kΩ

Video - Cinch

Input voltage : 1 Vpp ± 3dB
 Input impedance : 75 Ω

Video - YC (Hosiden)

according IEC 933-5

Superimposed DC-level on pin 4 (load ≥ 100 kΩ):
 < 2.4V is detected as 4:3 aspect ratio
 > 3.5V is detected as 16:9 aspect ratio

Input voltage Y : 1 Vpp ± 3dB
 Input impedance Y : 75 Ω
 Input voltage C : burst 300 mVpp ± 3dB
 Input impedance C : 75 Ω

1.5.3 Out 1

Component Video Cinch Y/Pb/Pr / Progressive Scan
 according EIO-770-1-A, EIA-770-2-A

Audio - Cinch

Output voltage : 2 Vrms max
 Output impedance : < 2kΩ

1.5.4 Out 2

Video - Y/C (Hosiden)

Output voltage Y : 1 Vpp ± 3dB
 C : burst 300 mVpp ± 1dB
 Output impedance Y, C : 75 Ω

Video - Cinch

Output voltage : 1 Vpp ± 1dB
 Output impedance : 75 Ω

Audio - Cinch

Output voltage : 2 Vrms max
 Output impedance : < 1kΩ

1.6 Video Performance DVD

All outputs loaded with 75 Ohm
 SNR measurements over full bandwidth without weighting.

1.6.1 All Outputs

SNR : > 48dB
 Bandwidth : 4.2 MHz - 3dB

1.7 Audio Performance CD

1.7.1 Cinch Output Rear

Output voltage 2 channel mode : 2Vrms ± 1dB
 Channel unbalance (1kHz) : <1dB
 Crosstalk 1kHz : >100dB
 Crosstalk 20Hz-20kHz : >87dB
 Frequency response 20Hz-20kHz : ±0.2dB max
 Signal to noise ratio (A-weighted) : >90dB
 Dynamic range 1kHz : >83dB
 Distortion and noise 1kHz : >83dB
 Distortion and noise 20Hz-20kHz : >75dB
 Intermodulation distortion : >70dB
 Mute : >95dB
 Outband attenuation: : >40dB above 30kHz

1.8 Digital Output

1.8.1 Coaxial

CDDA / LPCM : according IEC60958
 MPEG1, MPEG2, AC3 audio : according IEC61937
 DTS : according IEC61937 amendment 1

1.9 Digital Video Input (IEEE 1394)

1.9.1 Applicable Standards

Implementation according:
 IEEE Std 1394-1995
 IEC 61883 - Part 1
 IEC 61883 - Part 2 SD-DVCR (02-01-1997)
 Specification of consumer use digital VCR's using 6.3 mm magnetic tape - dec. 1994
 Mechanical connection according:
 Annex A of 61883-1

1.10 Dimensions and Weight

Height of feet : 5.5mm
 Apparatus tray closed : WxDxH:435x285x65mm
 Apparatus tray open : WxDxH:435x422x65mm
 Weight without packaging : app. 4 kg ± 0.5 kg
 Weight in packaging : app. 6.0 kg

1.11 Laser Output Power & Wavelength

1.11.1 DVD

Output power during reading : 1.0mW
 Output power during writing : 30mW
 Wavelength : 650nm

1.11.2 CD

Output power : 1.0mW
 Wavelength : 780nm

1.12 Write Speed

Type of Disc (Function)	Disc Rotation Speed
Read Speed CD	7X CAV (25Hz)
Read Speed DVD	4X CAV (40Hz)
Write Speed DVD+RW	2.4X ZCAV
Write Speed DVD+R	2.4X ZCAV

2. Safety Information, General Notes & Lead Free Requirements

2.1 Safety Instructions

2.1.1 General Safety

Safety regulations require that during a repair:

- Connect the unit to the mains via an isolation transformer.
- 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, you must return the unit in its original condition. Pay, in particular, attention to the following points:

- Route the wires/cables correctly, and fix them with the mounted cable clamps.
- Check the insulation of the mains lead for external damage.
- Check the electrical DC resistance between the mains plug and the secondary side:
 1. Unplug the mains cord, and connect a wire between the two pins of the mains plug.
 2. Set the mains switch to the 'on' position (keep the mains cord unplugged!).
 3. Measure the resistance value between the mains plug and the front panel, controls, and chassis bottom.
 4. Repair or correct unit when the resistance measurement is less than 1 MΩ.
 5. Verify this, before you return the unit to the customer/user (ref. UL-standard no. 1492).
 6. Switch the unit 'off', and remove the wire between the two pins of the mains plug.

2.1.2 Laser Safety

This unit employs a laser. Only qualified service personnel may remove the cover, or attempt to service this device (due to possible eye injury).

Laser Device Unit

Type	: Semiconductor laser GaAlAs
Wavelength	: 650 nm (DVD) 780 nm (VCD/CD)
Output Power	: 20 mW (DVD+RW writing) 0.8 mW (DVD reading) 0.3 mW (VCD/CD reading)
Beam divergence	: 60 degree



Figure 2-1

Note: Use of controls or adjustments or performance of procedure other than those specified herein, may result in hazardous radiation exposure. Avoid direct exposure to beam.

2.2 Warnings

2.2.1 General

- 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 at the same potential as the mass of the set by a wristband with resistance. Keep components and tools 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 live voltage section. The primary side of the power supply, including the heatsink, carries live mains voltage when you connect the player to the mains (even when the player is 'off!'). It is possible to touch copper tracks and/or components in this unshielded primary area, when you service the player. Service personnel must take precautions to prevent touching this area or components in this area. A 'lightning stroke' and a stripe-marked printing on the printed wiring board, indicate the primary side of the power supply.
- Never replace modules, or components, while the unit is 'on'.

2.2.2 Laser

- The use of optical instruments with this product, will increase eye hazard.
- Only qualified service personnel may remove the cover or attempt to service this device, due to possible eye injury.
- Repair handling should take place as much as possible with a disc loaded inside the player.
- Text below is placed inside the unit, on the laser cover shield:

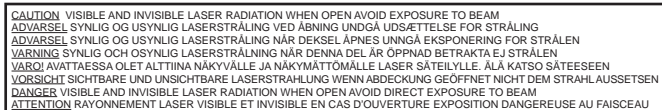


Figure 2-2

2.2.3 Notes

Dolby

Manufactured under licence from Dolby Laboratories. "Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories. Confidential Unpublished Works.
©1992-1997 Dolby Laboratories, Inc. All rights reserved.



Figure 2-3

Trusurround

TRUSURROUND, SRS and symbol (fig 2-4) are trademarks of SRS Labs, Inc. TRUSURROUND technology is manufactured under licence from SRS labs, Inc.



Figure 2-4

Video Plus

“Video Plus+” and “PlusCode” are registered trademarks of the Gemstar Development Corporation. The “Video Plus+” system is manufactured under licence from the Gemstar Development Corporation.



Figure 2-5

Macrovision

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners.

Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

2.3 Lead Free Requirement**Information about Lead-free produced sets**

Philips CE is starting production of lead-free sets from 1.1.2005 onwards.

IDENTIFICATION:

Regardless of special logo (not always indicated)



One must treat all sets from **1 Jan 2005** onwards, according next rules.

Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 1991 wk 18

So from 0501 onwards = from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead-ed/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-pate is required, please contact the manufacturer of your solder-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 solder alloy. The solder tool must be able
 - To reach at least a solder-temperature of 400°C,
 - To stabilize the adjusted temperature at the solder-tip
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized 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 rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free). If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- 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 BGA-ICs:
 - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
 - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.
- Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website www.atyourservice.ce.Philips.com you find more information to:
 - BGA-de-/soldering (+ baking instructions)
 - Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the “magazine”, chapter “workshop news”.

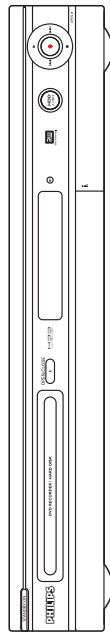
For additional questions please contact your local repair-helpdesk.

Quick Start Guide

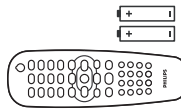


- 1** Connect
- 2** Set up
- 3** Enjoy

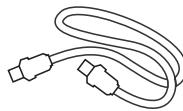
What's in the box?



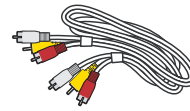
Hard Disk/ DVD Recorder



Remote Control and 2 batteries



RF Coaxial Cable



Audio/Video Cable



Quick Start Guide



User Manual

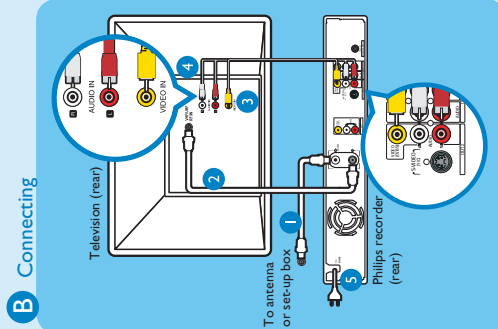


1 Connect

Start with the 'Basic Connection.'
If you have a VCR, follow the instructions for 'Connection with a VCR or similar device'.

Basic Connection

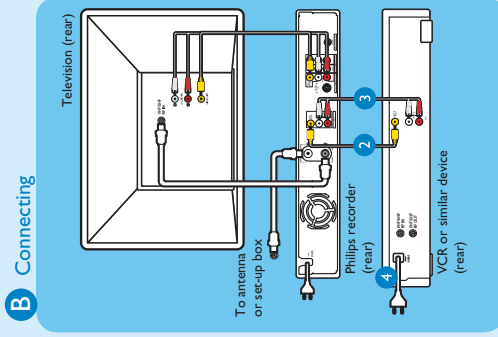
- A Before Connecting**
Unplug the antenna cable that is currently connected to your TV.



- 1** Connect the antenna cable to the **ANTENNA IN** jack on the recorder.
- 2** Use the supplied RF coaxial cable to connect the **TV** jack on this recorder to the Antenna In jack on the TV.
- 3** Use the supplied audio/video cable (yellow plug) to connect the **VIDEO - OUT 2** jack on this recorder to the **VIDEO IN** jack on the TV.
- 4** Use the supplied audio/video cable (red/ white plugs) to connect the **AUDIO L/R OUT 2** jack on this recorder to the **AUDIO IN** jacks on the TV.
- 5** Connect the power cable from the recorder to an AC power outlet.

Connection with a VCR or similar device

- A Before Connecting**
Your new Philips recorder replaces the VCR for your recording needs. First, unplug all the connections from your VCR.



- 1** Follow steps **1** to **4** of 'Connecting' under 'Basic Connections' to connect the recorder before you proceed to step **2** below.
 - 2** Use a yellow video cable (not supplied) to connect the **VIDEO (CVBS) EXT 1** jack on this recorder to the yellow **VIDEO OUT** jack on the VCR.
 - 3** Use another red and white audio cable (not supplied) to connect the **AUDIO L/R EXT 1** jacks on this recorder to the red and white **AUDIO OUT** jacks on the VCR.
 - 4** Connect the power cable from your VCR to an AC power outlet.
- Note** In this setup, the VCR cannot record TV programs.

For additional connection diagrams, see the accompanying User Manual.

3. Directions For Use

The following excerpt of the Quick Use Guide serves as an introduction to the set. The Complete Direction for the Use can be downloaded in different languages from the internet site of Philips Customer care Center: www.p4c.philips.com

2 Set up

A Inserting Batteries



* Note where the positive and negative ends go.

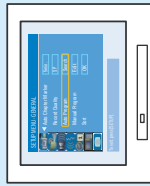
B Finding the viewing channel



- 1 Press **STANDBY-ON** on the recorder
- 2 Switch on the TV.

Note If connected to your VCR, make sure it is switched off or in standby mode before proceeding.

- 3 Press **SETUP**.
- 4 Press **0** on the TV's remote control, then press the Channel Down button repeatedly until you see the **{ SETUP MENU - GENERAL }** page. This is the correct viewing channel for the recorder.



Note You may press the AV or SELECT button on the TV's remote control (if available) to select the correct viewing channel. See your TV's user manual.

C Initial installation

- 1 Press **SETUP** on the remote control.
 - **SETUP MENU - GENERAL**
 - Auto Chapter Marker
 - Record Quality
 - Search
 - Auto Program
 - Manual Program
 - Edit
 - Sort
 - OK
- 2 Setup and install TV channels.
 - Highlight **Auto Program** and press **RIGHT**. Press **DOWN** repeatedly until you highlight **{ Auto Program - Search }**, and press **OK**.
 - Select **OK** and press **OK** to proceed.
 - The automatic TV channel search will start. This process may take several minutes. Once complete, the total number of channels found will appear on the TV.
 - Select **CONTINUE** and press **OK** to start automatic TV channel search.

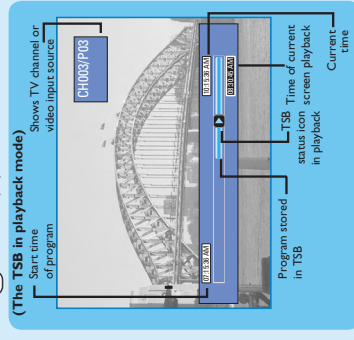
Note If no channels were found, check the antenna connection and start the channel search again.
- 3 Select the language.
 - Highlight **System Language** and press **RIGHT**.
 - select the System Language
 - select the Audio Language for DVD disc playback.
 - select the Subtitle Language for DVD disc playback.
 - select the Disc Menu Language for DVD disc playback.
- 4 Set the date and time.
 - Highlight **Date and Time** and press **RIGHT**.
 - Use the numeric keypad **0 - 9** to input the date/time, then press **OK** to confirm.
- 5 Press **SETUP** to finish installation.

Your Philips recorder is now ready for use!

3 Enjoy

About the Time Shift Buffer (TSB)

Once you switch on this recorder, the currently selected TV program will be stored in a temporary storage called the 'TSB' (Time Shift Buffer). The TSB can store up to 3 hours of recordings temporarily. Press **TSB** once to display the Time Shift video bar.



The contents on the time shift buffer will be erased once you press **CH (+)** or **CH (-)** or if you switch to another mode: **SOURCE**, **DV**, **DVD REC**.

Pause 'live' TV

At times, you may be interrupted while watching your favourite program. Now you can PAUSE it, as if you were in control of the broadcast.

- 1 Press **PAUSE** while watching any live TV program to suspend it.
- 2 Press **PLAY** to continue.
- 3 To return to live broadcast, press and hold **RIGHT**.
 - To jump forward playback, press **RIGHT** once for every 30 seconds.

Instant Replay

While watching a live TV program, you can press **LEFT** to jump back 10 seconds upon every single press for instant replay. To return to live broadcast, press and hold **RIGHT**.

Start Recording

A Before recording to hard disk
You can preset the recording quality for content recorded to the time shift buffer.

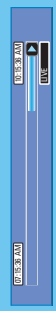
- 1 Press **SETUP** on the remote control.
- 2 Highlight **Record Quality** and press **RIGHT**. Press **DOWN** repeatedly until you highlight **{ Record Quality }**, and press **RIGHT**.
- 3 Use **UP** / **DOWN** to select the preferred mode of recording quality and press **OK** to confirm.

Record Quality	Estimated Recording Time (TSB) per hour	Estimated Recording Time (HDD) per hour
HQ High Quality	34	53
SP Standard Play	48	106
LP Long Play	68	159
EP Extended Play	102	212.5
SUP Super Long Play	204	318

Values are estimates only. Price of the HDD storage will be reserved for the operations of this recorder and time shifting.

B Record to hard disk

- 1 Press **TUNER** to switch to tuner mode.
- 2 Press **CH (+)** or **CH (-)** to go to the TV program channel you wish to record.
- 3 Press **TSB** to display the time shift video bar.

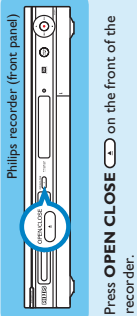


Note To record from a connected external device, press **SOURCE** repeatedly to cycle through video input sources from:

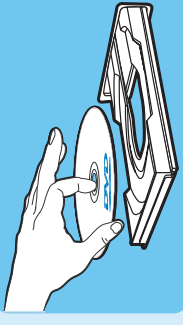
- { CAM 1 } : VIDEO jack on the front
 - { CAM 2 } : S-VIDEO jack on the front
 - { EXT 1 } : EXT 1 jack on the back
- or Press **DV** to record from a DV camcorder connected via the DV IN jack on the recorder.

- 4 Press **REC** to start recording.
 - Note** Press **REC** repeatedly to extend 30 minutes increments per single press.
- 5 To stop recording, press **STOP**.

Inserting discs



- Press **OPEN CLOSE** on the front of the recorder.



- Place a DVD disc in the tray with the label facing up.
- Press **OPEN CLOSE** again to close the tray.

Record to a DVD recordable disc

- Press **TUNER** to switch to tuner mode.
- Press **CH (+) (-)** to go to the TV program channel you wish to record.
- Insert a recordable DVD disc. Press **DVD REC** to switch to direct record mode and display the information bar.

System State: Stop
Record to Optical Disc As **Standard Play**
Elapsed Time: **00:00:00** Remaining Time: **02:25:25**

Note To record from a connected external device, press **SOURCE** repeatedly OR press **DV** to record from a DV camcorder connected via the DV IN jack on the recorder.

- Press **SELECT** repeatedly to select the preferred mode of recording quality.

Record Quality	Hours of Recording (at 4:3:0)	Types of discs for recording
High Quality HQ	2	DVD-RW
Standard Play SP	2.5	DVD-R
Long Play LP	3	DVD-RW
Extended Play EP	4	DVD-R
Super Long Play SP	6	DVD-R

- Press **REC** to start recording.
- To stop the recording, press **STOP**.

Copying to a DVD recordable disc

You can copy the contents in your hard disk to a DVD recordable disc.

- Insert a recordable DVD disc.
- Press **HDD** to view the titles on the hard disk.
- Press **UP** or **DOWN** to select the title.
- Press **SELECT** to mark the titles you wish to copy.
- Once you finish your selection, press **HDD** to start copying to the recordable DVD disc.

Note When copying is in progress, the icon will be shown on the screen.

During copying, you can continue watching TV programs in tuner mode or select another HDD title for playback.

- Once the copying process completes, the icon will no longer be shown.

Types of discs used on this recorder

Type	Record	Playback	Edit
DVD+RW	✓	✓	✓
DVD+R	✓	✓	✓
DVD-RW	✓	✓	✓
DVD-R	✓	✓	✓
DVD VIDEO	✗	✗	✗
AUDIO CD	✗	✗	✗
VIDEO CD	✗	✓	✗
DATA CD	✗	✓	✗
DATA CD	✗	✓	✗

Need help?

Onscreen Help text

Press **?** on the remote control for onscreen help text when using your Philips recorder.

User Manual

See the user manual that came with your Philips recorder.

Online

Go to www.philips.com/support.



Be responsible
Respect copyrights

4. Mechanical Instructions

4.1 Dismantling and Assembly of the Set

For item numbers please see the exploded view in Chapter 9.

4.1.1 Dismantling of the DVD Loader Tray Cover

- 1) Inserting a minus screw driver and push the lever in the direction as shown in Figure 4-1 to unlock the tray before sliding it out.



Figure 4-1

- 2) Remove the Tray Cover as shown in Figure 4-2.



Figure 4-2

4.1.2 Dismantling of the Hard-Disk Drive & Front Panel Assembly

- 1) Remove the 4 screws from the Hard-Disk Drive.

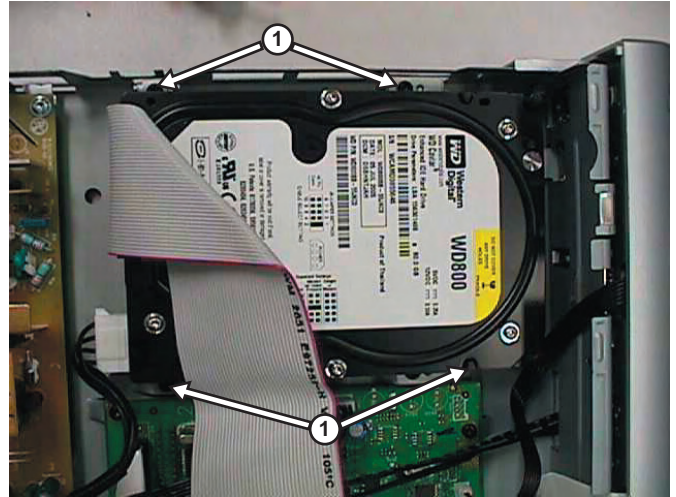


Figure 4-3

- 2) Remove the 3 screws and release the 2 snap hooks on the side before removing the front assembly.

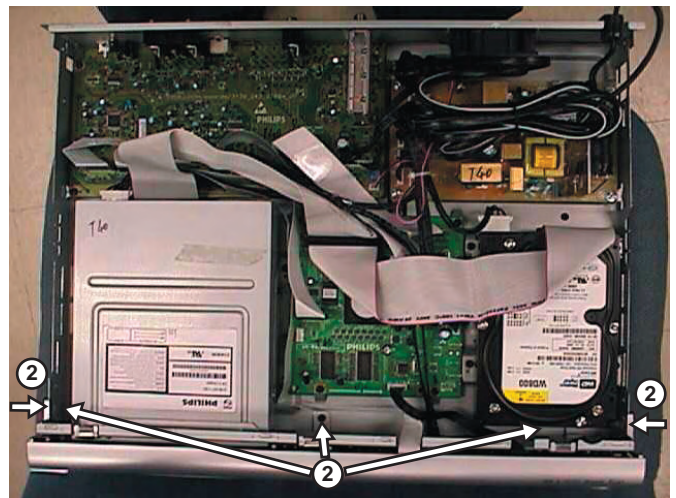


Figure 4-4

- 3) Remove the 6 screws to remove the front plate 184 as shown in Figure 4-5.

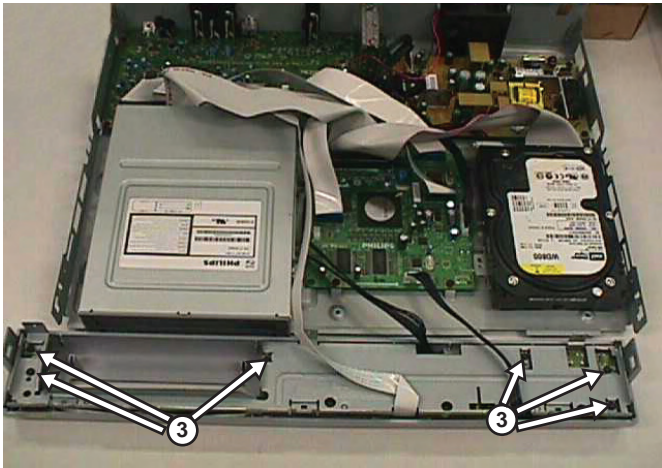


Figure 4-5

- 3) Place the Basic Engine in the service position by flipping the basic engine to the vertical position.

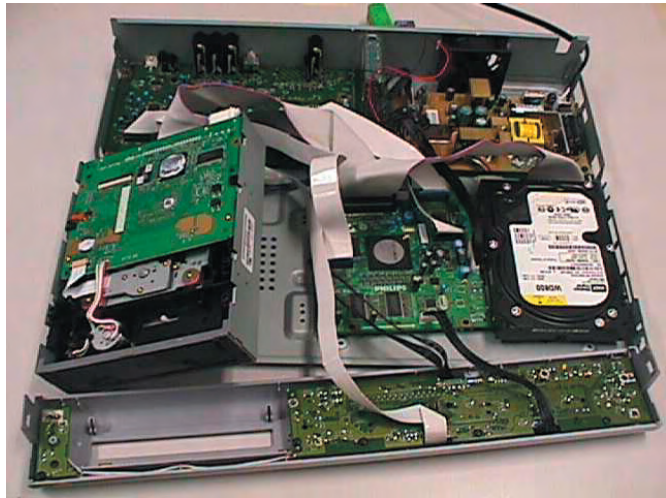


Figure 4-7

4.1.3 Dismantling of the Basic Engine

- 1) Remove the Cover Tray (See 4.1.1).
- 2) Remove the 4 screws to free the Basic Engine.

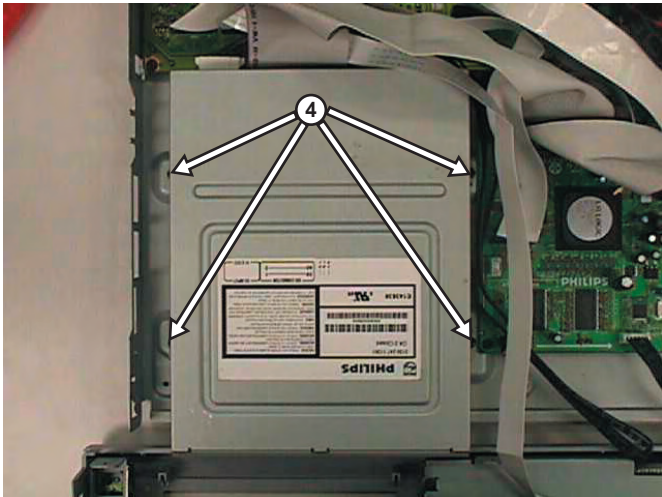


Figure 4-6

4.1.4 Dismantling of the Digital Board

- 1) Remove the 4 screws to loose the Digital Board as shown in Figure 4-8.

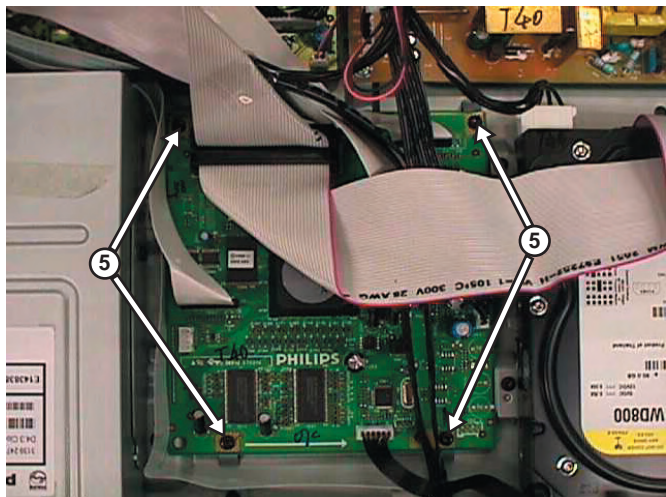


Figure 4-8

- 2) Service Position can be achieved by flipping the Digital board to the Vertical Position as shown in Figure 4-9.



Figure 4-9

Note: The cable (just to transfer the service connection to the MOBO board) from socket 1101 can be removed and use for hyper terminal connection.

- 3) Service Position can be achieved by flipping the Analog board to the Vertical Position as shown in Figure 4-10.

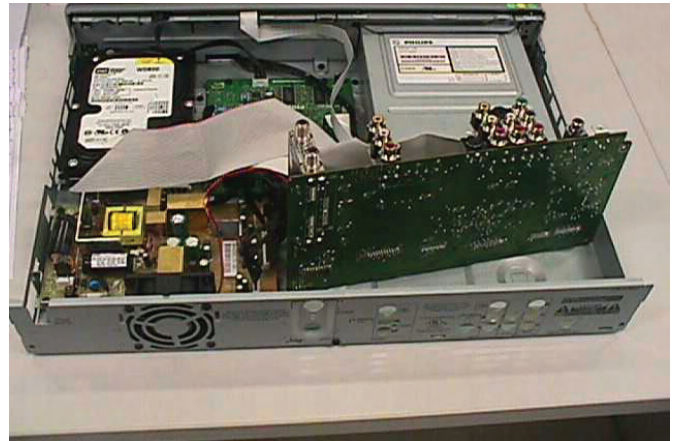


Figure 4-12

4.1.5 Dismantling of the Analog Board

- 1) Remove 5 screws 246 and 4 screws 254 and screw 230.

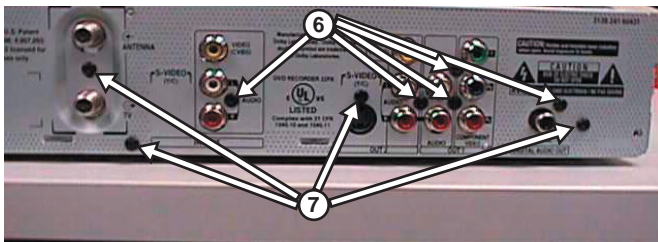


Figure 4-10

- 2) Remove 3 screws 270 and release 2 catches on the board.

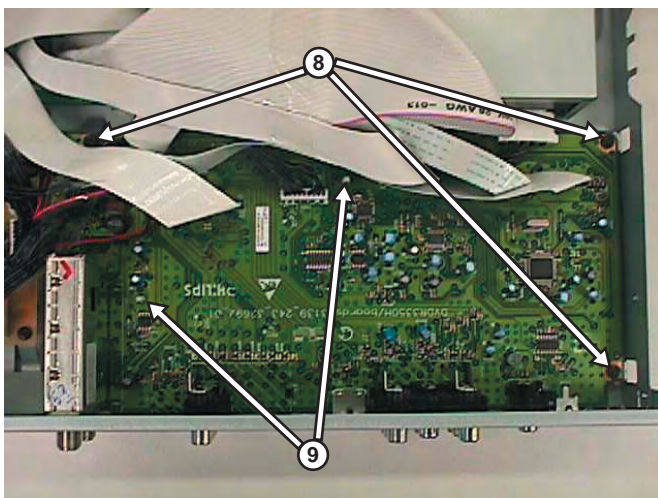


Figure 4-11

5. Firmware upgrading and HDD Formatting

Important Instructions

- Each of the 3 Upgrade procedures has to be recorded into 3 separate discs.
- The FLASH firmware and HDD firmware must be matched (i.e. Same version no.)
- FLASH firmware upgrading must be done before HDD firmware upgrading.

5.1 Firmware Upgrading

A. Preparation to upgrade firmware:

1. Unzip the zip-archive file
2. Start the CD Burning software and create a new CD project (data disc) with the following settings:

File system:	Joliet
Format:	MODE 1: CDROM
Recording mode:	SINGLE SESSION (TRACK-AT-ONCE), FINALIZED CD

Note: Long file name is necessary for the preparation of the upgrade disc

3. Place the content of the zip-archive into the root directory of the new CD project.
4. Burn the data onto a blank CDR or CD-RW

B. Procedure to apply the FLASH firmware upgrade:

1. Power up the set and open tray.
2. Insert the prepared Upgrade CDROM and close the tray,
3. The TV connected to the set will display:

Software Upgrade Disc detected
Select OK to start or CANCEL to exit

4. Press <OK> button to confirm upgrading (use left/right button for selection)
5. The TV connected to the set will display:

Upgrading Software, Please wait
Do not switch off the power

The whole process takes less than 5 minutes.

Note: Do not press any button or interrupt the mains supply during the upgrading process, otherwise the set may becomes defective

6. When the upgrading process is successful the tray will open and the TV connected to the set will display:

System is successfully upgraded.
Remove disc from tray & reset system

7. Remove the Upgrade Disc and press <OK> button to confirm
8. The TV screen goes blank, tray close and after a while the Philips Logo screen appear again.

C. Procedure to apply the HDD firmware upgrade:

1. Power up the set and open tray.
2. Insert the prepared Upgrade CDROM and close the tray,
3. The TV connected to the set will display:

Software Upgrade Disc detected
Select OK to start or CANCEL to exit

4. Press <OK> button to confirm upgrading (use left/right button for selection)
5. The TV connected to the set will display:

Upgrading Software, Please wait
Do not switch off the power

The whole process takes less than 5 minutes.

Note: Do not press any button or interrupt the mains supply during the upgrading process, otherwise the set may becomes defective

6. When the upgrading process is successful the tray will open and the TV connected to the set will display:

System is successfully upgraded.
Remove disc from tray & reset system

7. Remove the Upgrade Disc and press <OK> button to confirm.
8. The TV screen goes blank, tray close and after a while the Philips Logo screen appear again.
9. Press <Tuner> and <Setup>.
10. In "SETUP MENU – HDD", select "Delete HDD" and press <OK>
11. The TV connected to the set will display:

All video programs on the HDD will be deleted
Press OK to continue.

12. Press <OK> button to confirm deleting. (Use the left/right button for selection)

The whole process takes less than 15 minutes.

Note: Do not press any button or interrupt the mains supply during the upgrading process, otherwise the set may becomes defective.

13. When the upgrading process is successful, the set will go into Standby Mode.

Note: All existing channels will be lost.

D. Procedure to apply the SERVO firmware upgrade:

1. Power up the set and open tray.
2. Insert the prepared Upgrade CDROM and close the tray,
3. The TV connected to the set will display:

Software Upgrade Disc detected
Select OK to start or CANCEL to exit

4. Press <OK> button to confirm upgrading (use left/right button for selection)
5. The TV connected to the set will display:

Upgrading Software, Please wait
Do not switch off the power

The whole process takes less than 15 minutes.

Note: Do not press any button or interrupt the mains supply during the upgrading process, otherwise the set may becomes defective

6. When the upgrading process is successful the tray will open and the TV connected to the set will display:

Loader upgrade process has completed successfully.
Press OK to reboot the system.

7. Remove the Upgrade Disc and press <OK> button to confirm
8. The TV screen goes blank, tray close and after a while the Philips Logo screen appear again.

E. How to read out the firmware version to confirm upgrading.

1. Power up the set and press <SETUP>.
2. Press <321> and <SELECT> buttons on the remote control.
3. Press <OK> to exit.

5.2 Procedure for replacing a new HDD:

1. Replace the faulty HDD with a new HDD.
2. Power up the set and open tray.
3. Insert HDD firmware upgrade disc and follow "Procedure to apply the HDD firmware upgrade" (See 5.1 C).

The whole process takes less than 15 minutes.

Note: Do not press any button or interrupt the mains supply during the upgrading process, otherwise the set may becomes defective.

4. When the HDD upgrading process is successful, the set will go into Standby Mode.
5. To upgrade the set, follow **Firmware Upgrading. (See 5.1)**

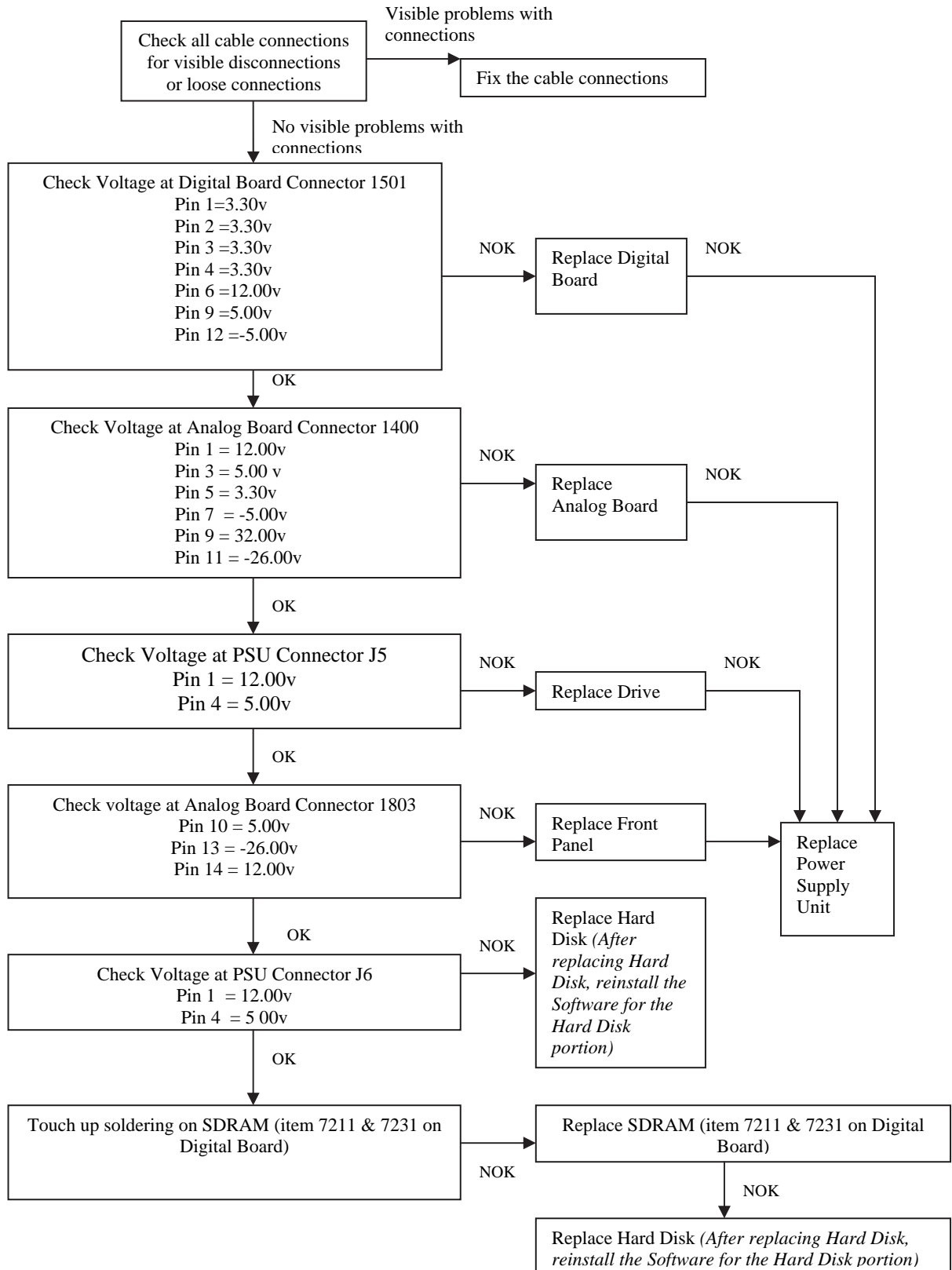
NOTES:

1. For references to voltage levels, NOK represents voltage measurements that are outside the range of $\pm 10\%$ of specified values
2. For references to soldering touch ups and replacing components, OK means the set no longer shows the problem and is working fine. NOK means the problem still exists.
3. For references to square pulses,
OK – signal shape resembles a square, with peak to peak voltage level of 3.3V $\pm 10\%$
NOK– means if the measurement is out the specification stated in the OK condition above
4. For references to sine waves,
OK – signal shape resembles a sine wave, with peak to peak voltage level of 5.6V $\pm 10\%$ (note that this voltage level is obtained by using a 0dB test signal).
NOK– means if the measurement is out the specification stated in the OK condition above
5. For references to video waveforms,
OK – the measured waveforms resembles (shape and voltage level $\pm 10\%$) their respective waveforms under the WAVEFORM section.
NOK– if the waveforms do not match (shape and voltage level $\pm 10\%$) the waveforms in the WAVEFORM section OR if there are no waveforms at all.

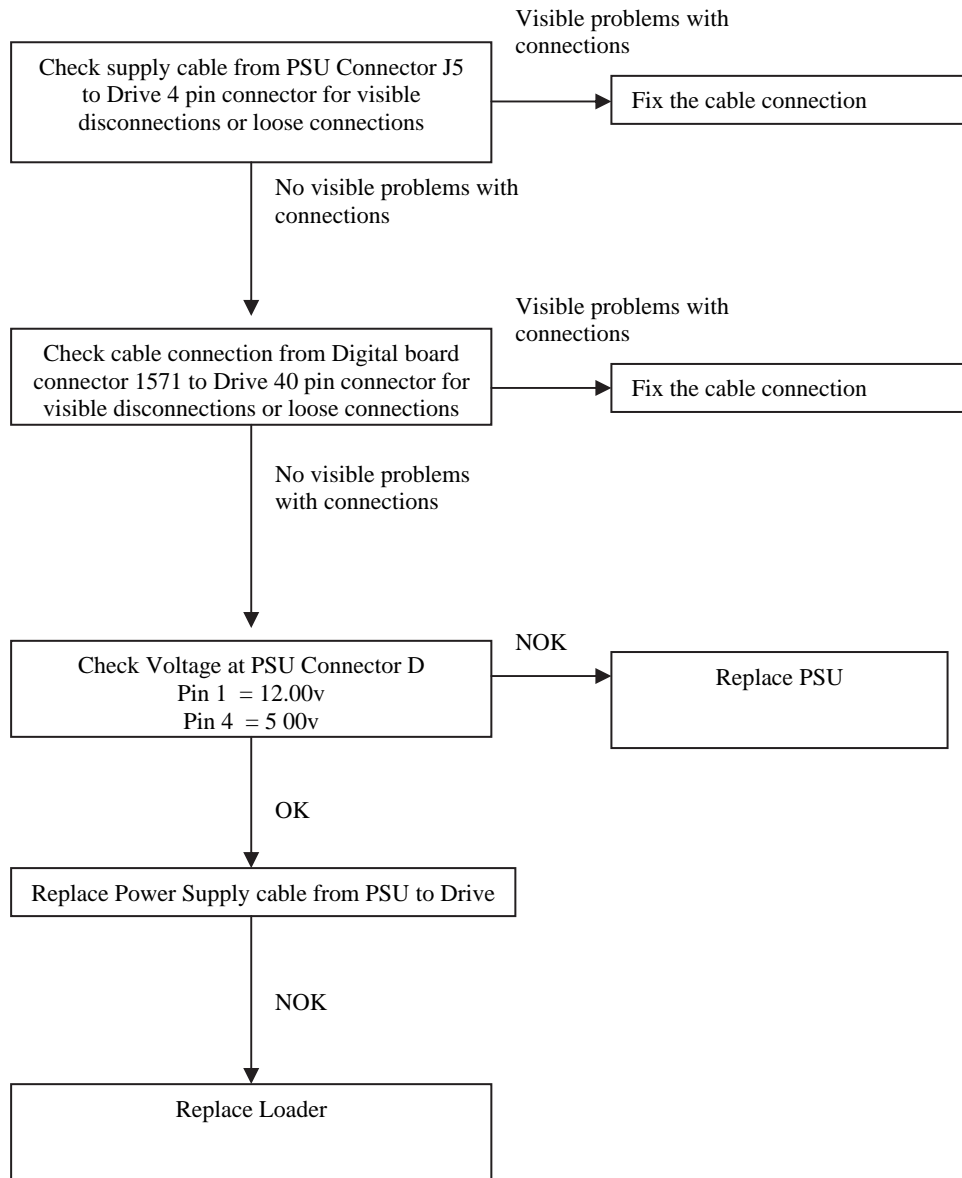
REMINDER: For points 3 – 5, please refer to the WAVEFORM section as a guideline.

5.3 Repair Chart

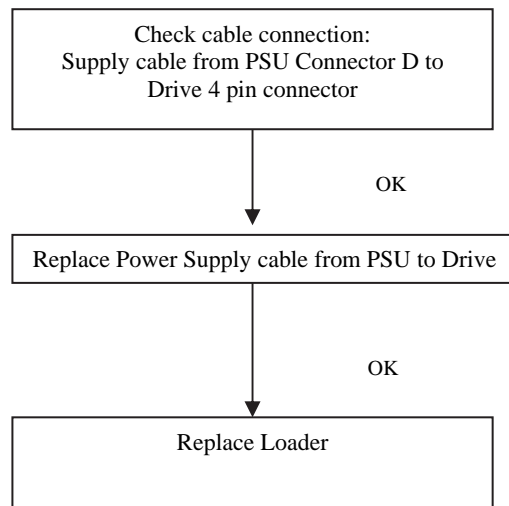
5.3.1 Completely Dead Set



5.3.2 Cannot Read Disk



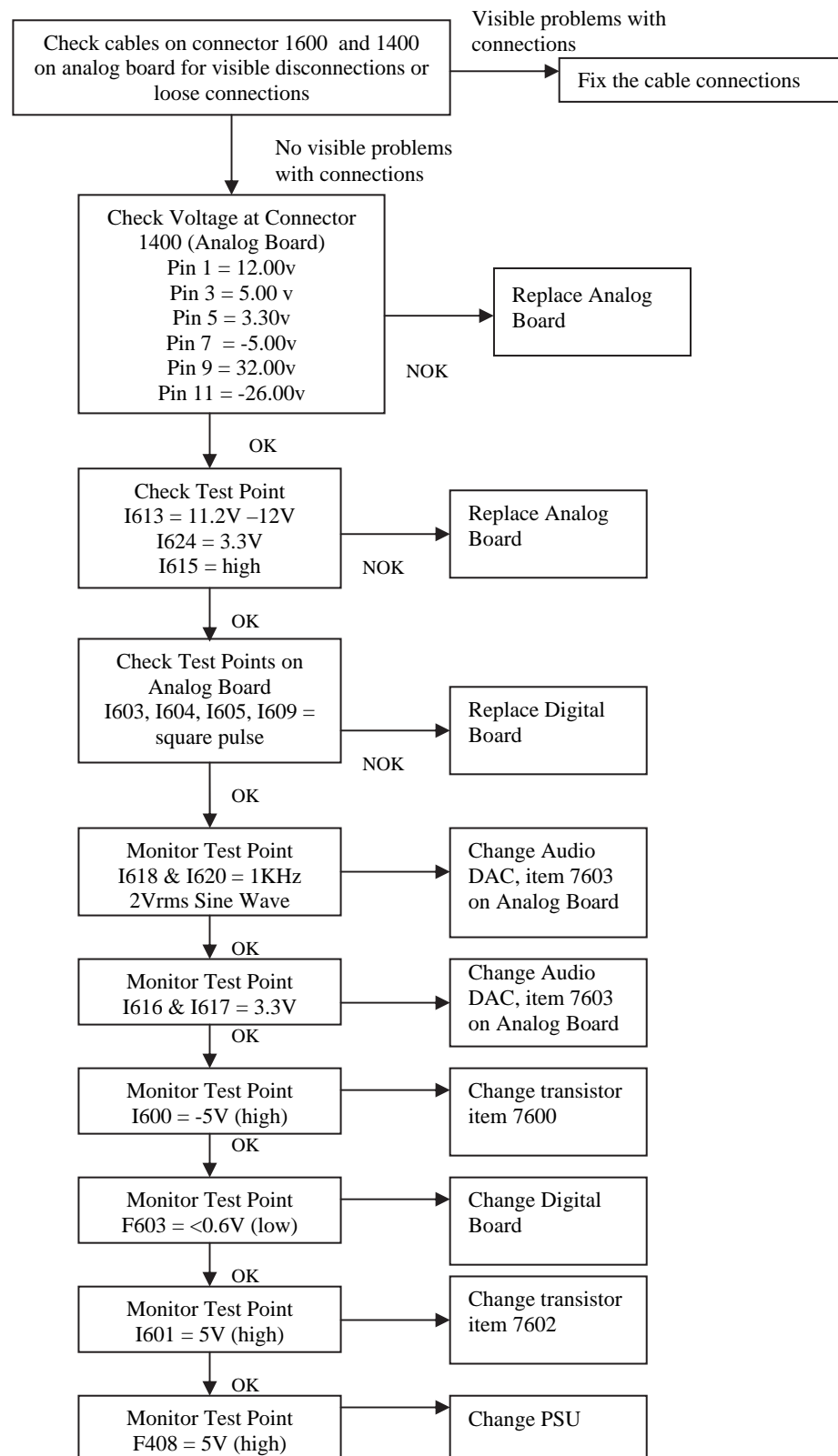
5.3.3 Disk Unknown



5.3.4 Audio No Sound (Playback)

NOTE1: To start debugging this section, playback in repeat mode a 1kHz 0dB sine wave from a test CD

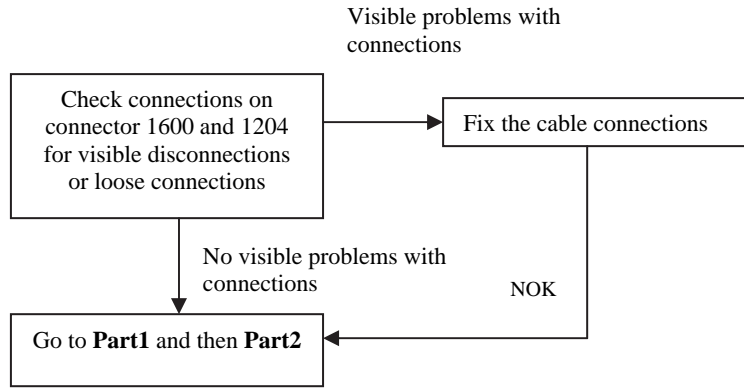
NOTE2: All references are to Analog Board unless otherwise specified



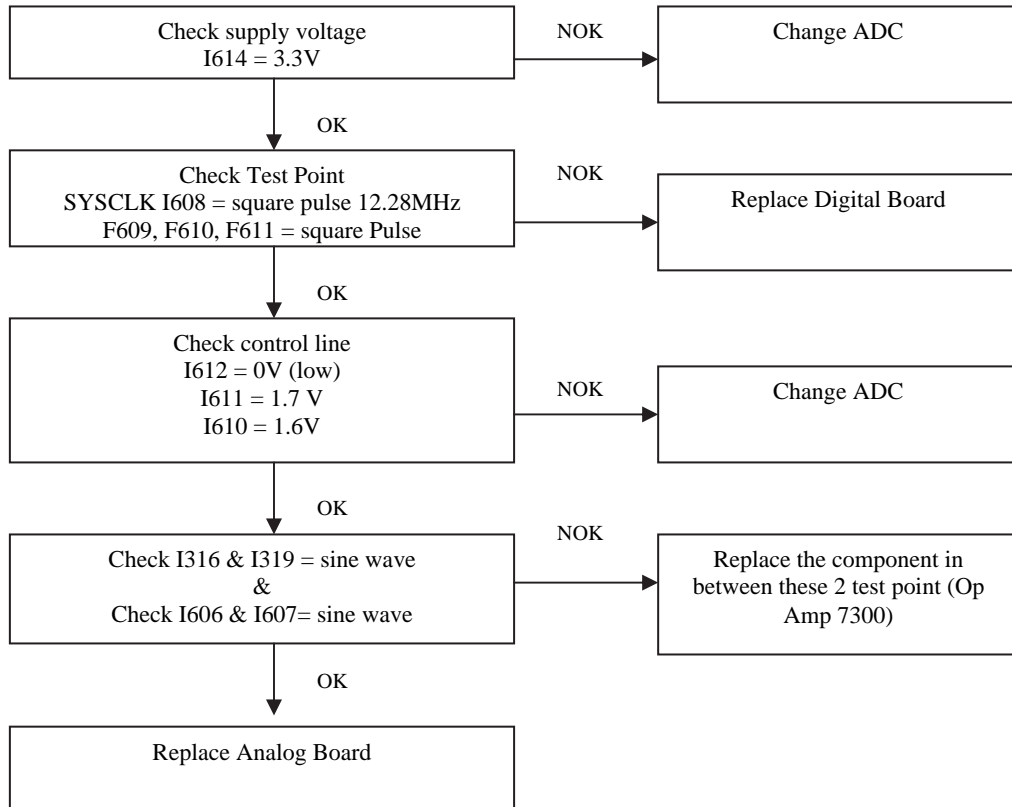
5.3.5 Audio No Sound (TV & External Source)

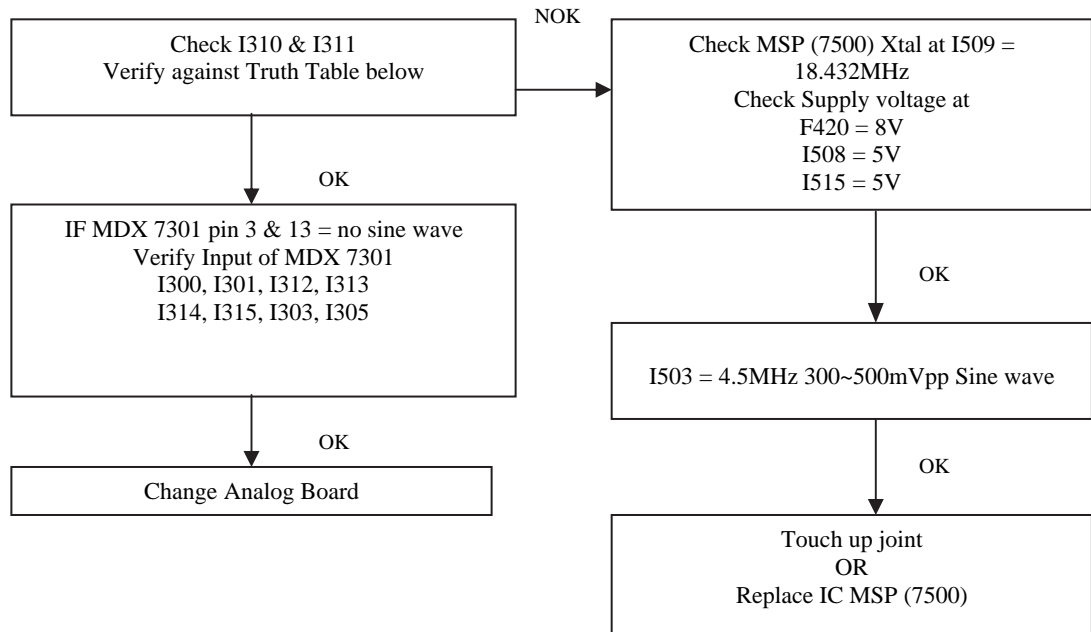
NOTE1: To start debugging this section, playback a 0dB 1kHz sine wave from a test disc on the external source which exhibits the problem.

NOTE2: All references are to Analog Board unless otherwise specified



Part 1



Part 2

Truth Table

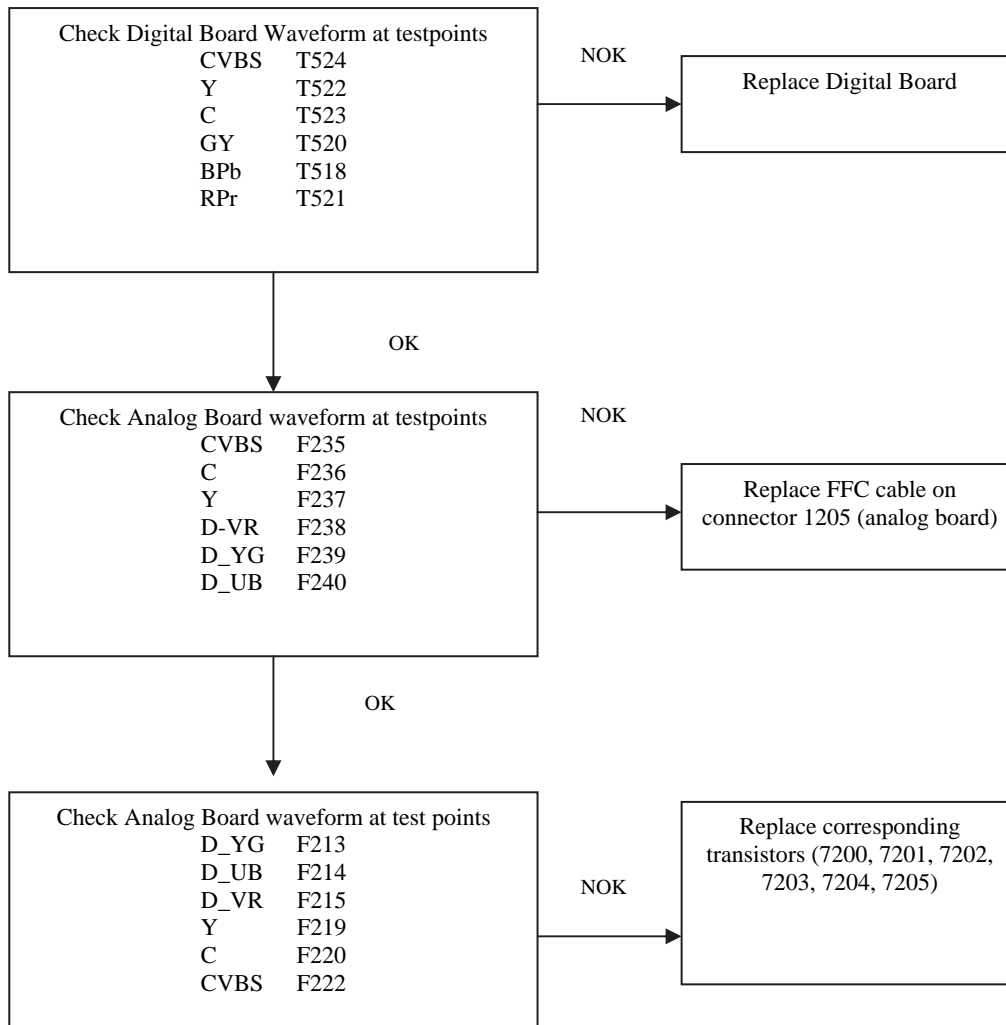
Pin9	Pin10	Source
0	0	RF tuner audio
0	1	Front Audio in
1	0	Rear audio in
1	1	Rear audio in 2 (provision)

5.3.6 No Video Out Upon Power ON (Assume set is not dead)

NOTE: To verify that the set is not dead, you should be able to do the following.

1. See on the Front Display the words “Ch001” after the required boot up time has elapsed
2. Eject the tray and Close the tray

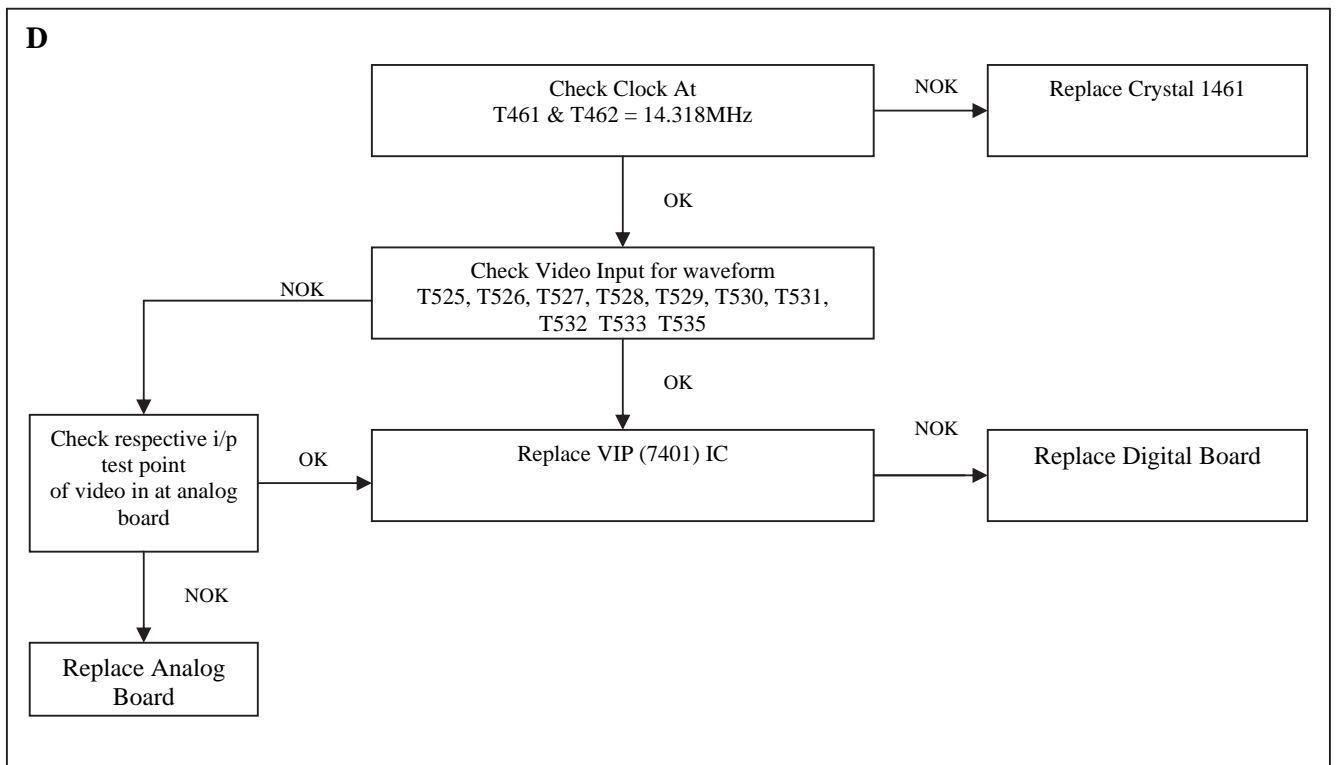
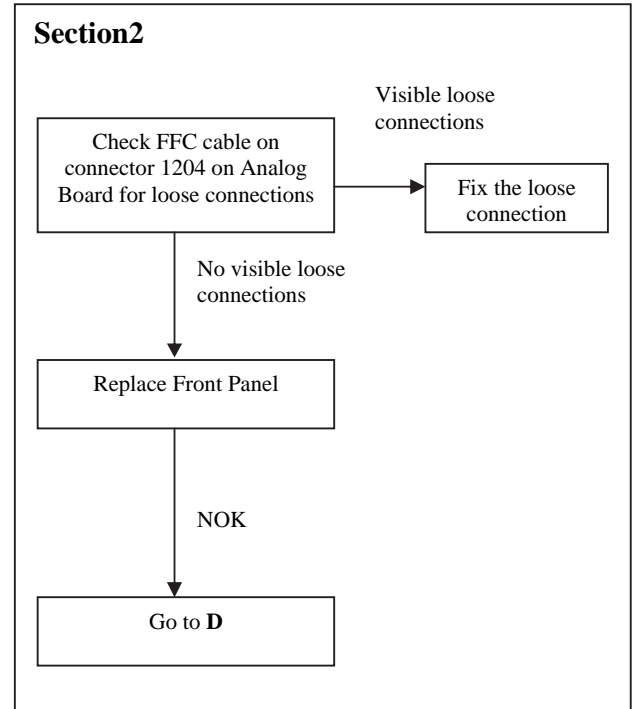
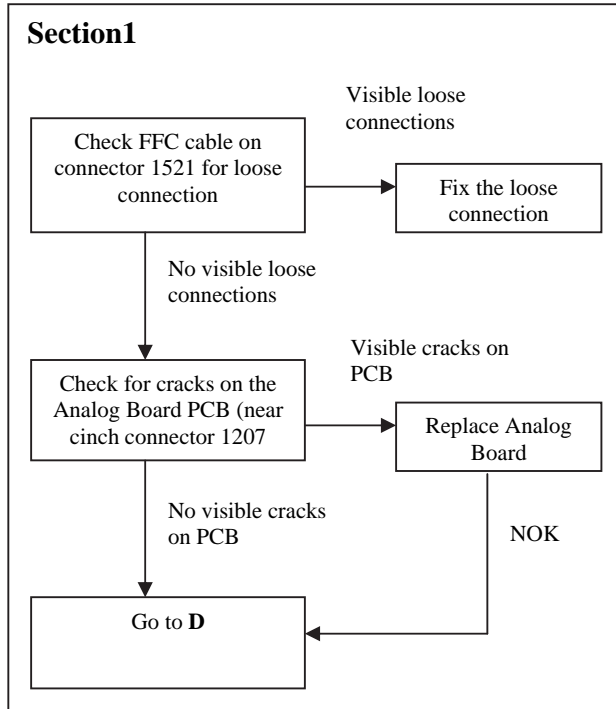
NOTE2: To debug this section, playback a 75% Color Bar title



5.3.7 No Video In Only

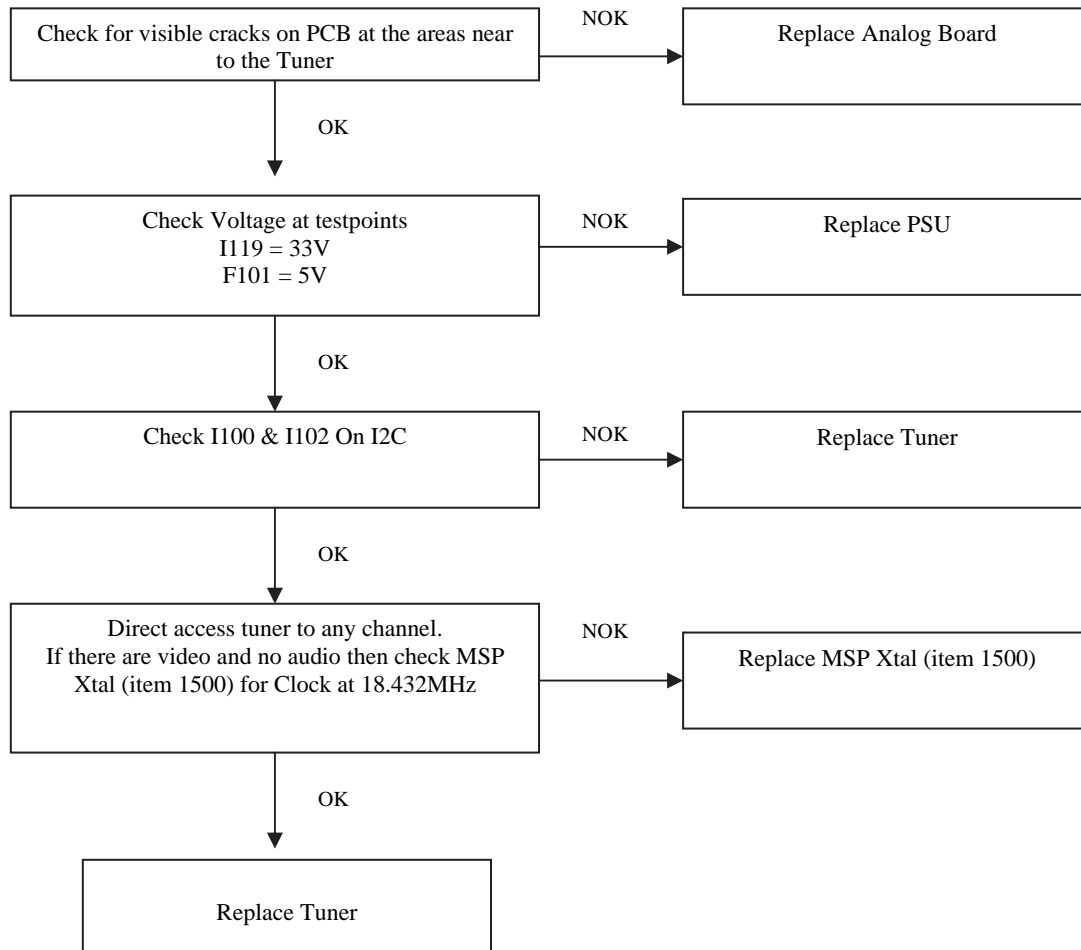
NOTE1: All references are to Digital Board unless otherwise specified

NOTE2: For problem with Rear Video Input, refer to Section1. For problem with Front Video Input, go to Section2.



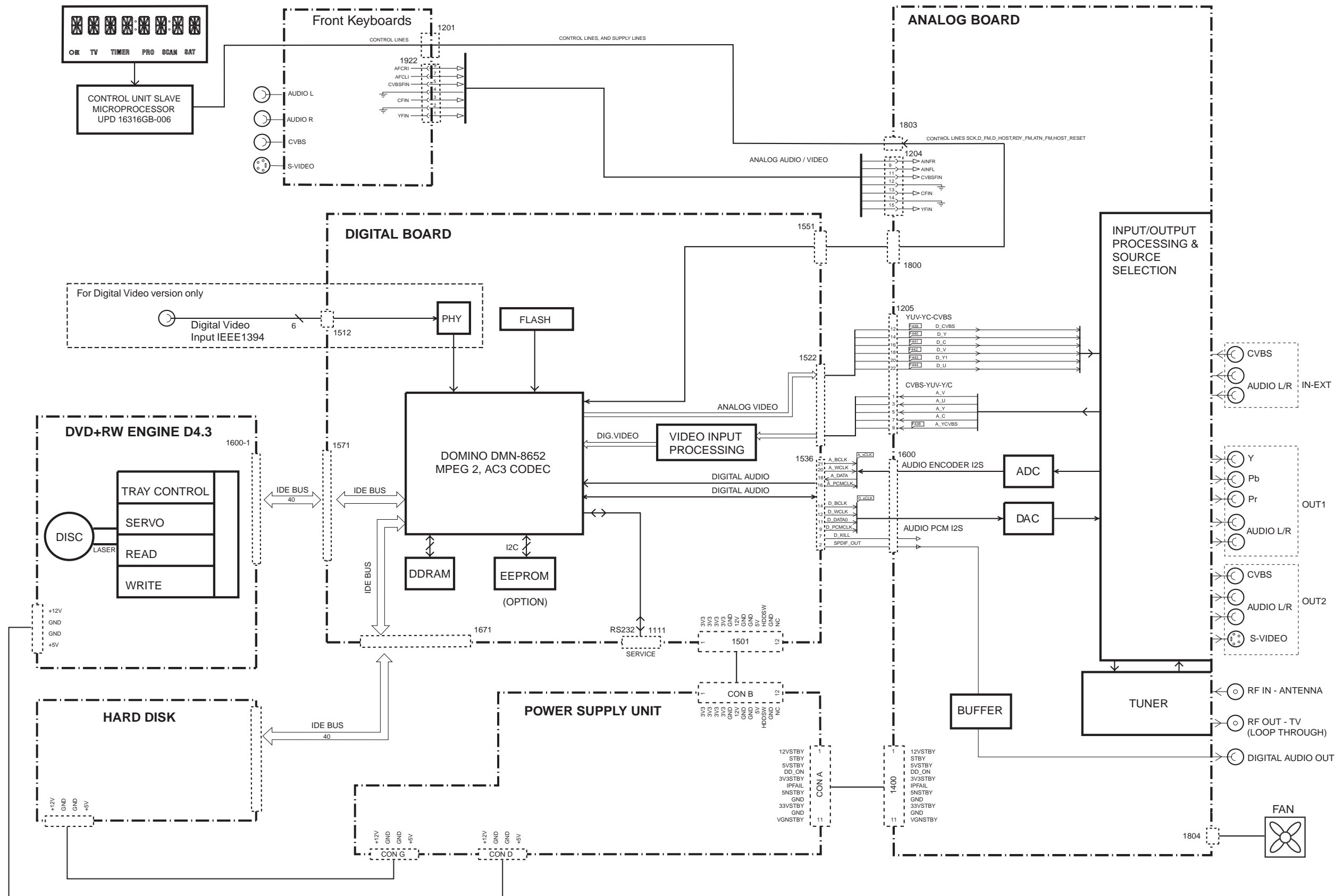
5.3.8 Tuner Not Functioning

NOTE: All references are to Analog Board

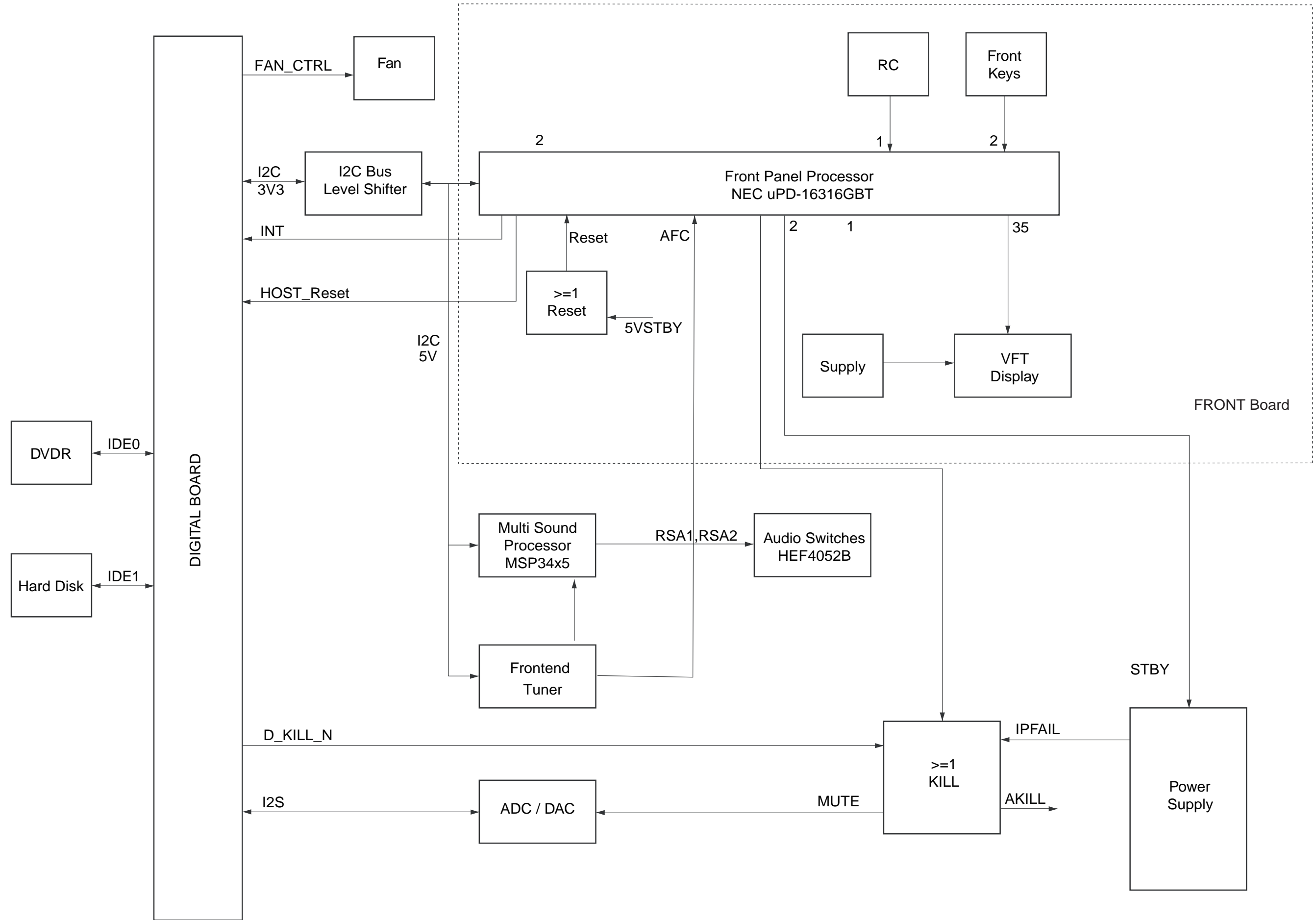


6. Block Diagrams, Waveforms, Wiring Diagram

Overall Block Diagram of the Set



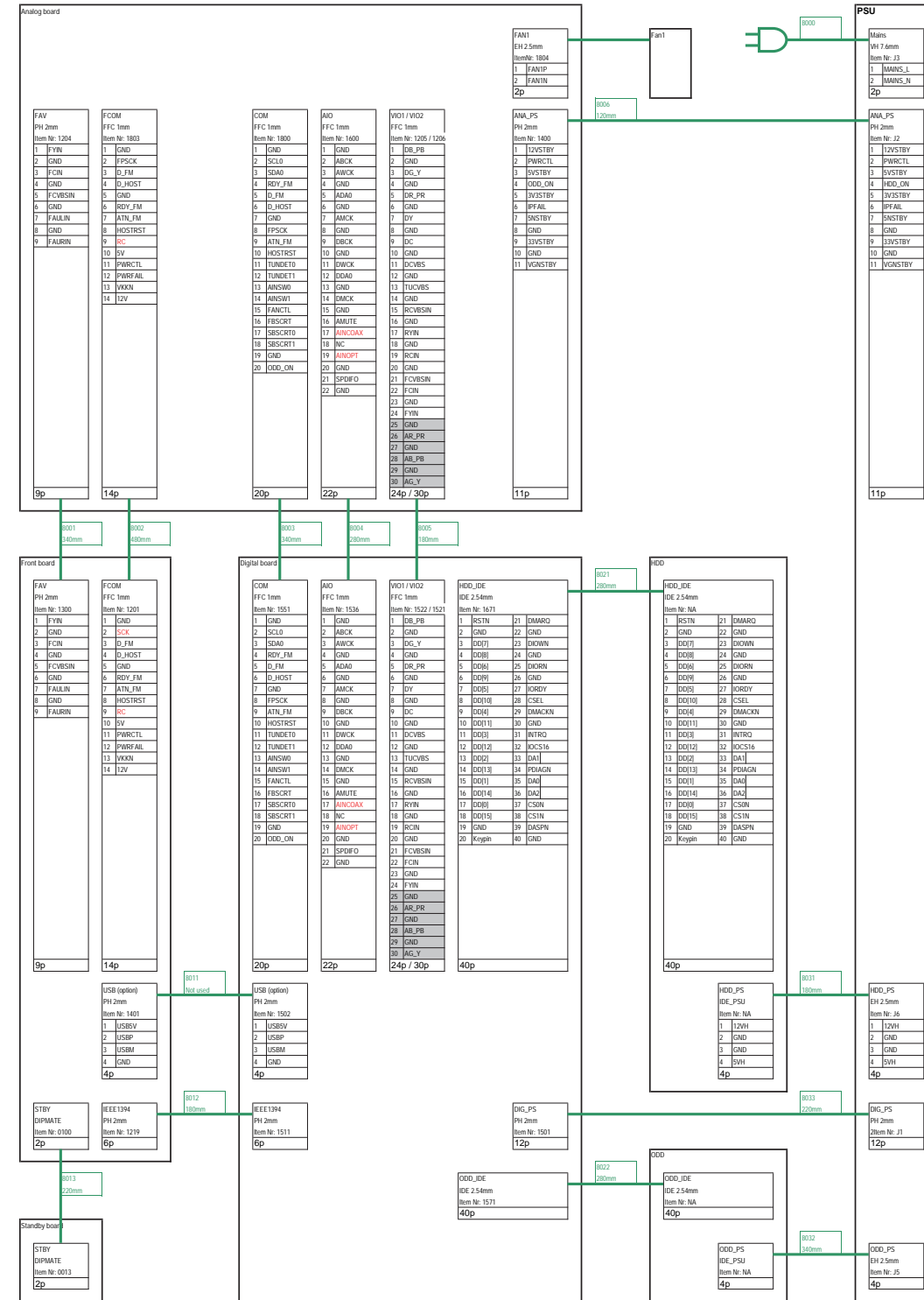
Control Block Diagram
Control Block Diagram Analog Board



Wiring Diagram

DVDR3350H, DVDR3360H and DVDR3370H

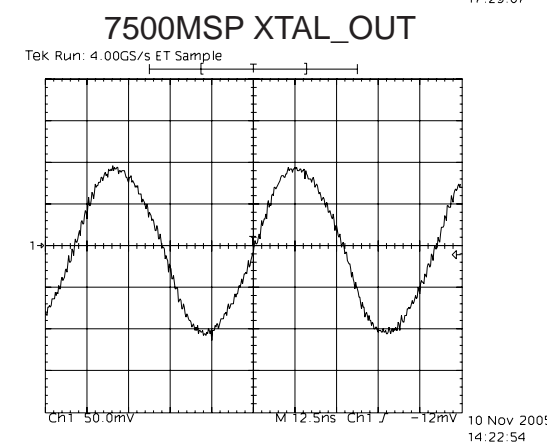
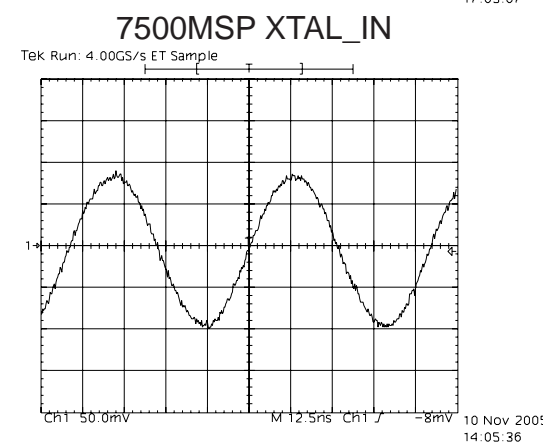
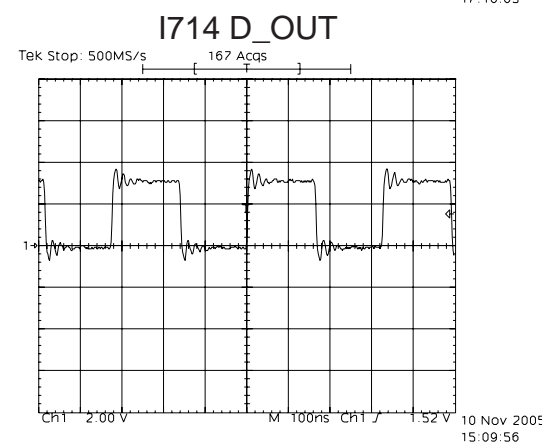
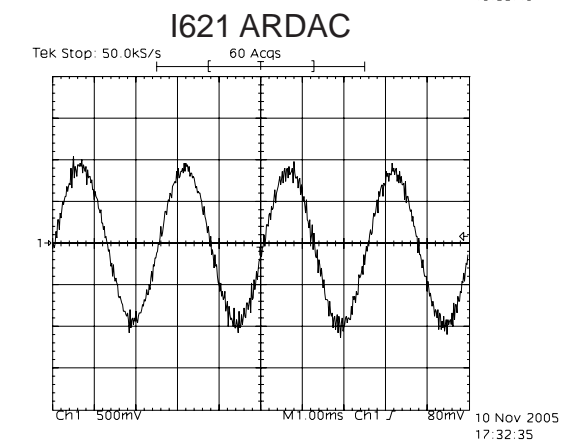
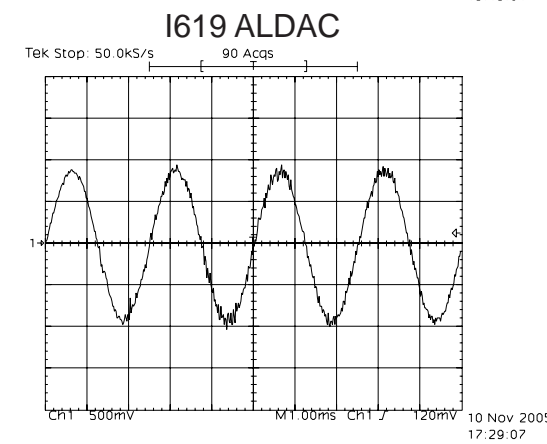
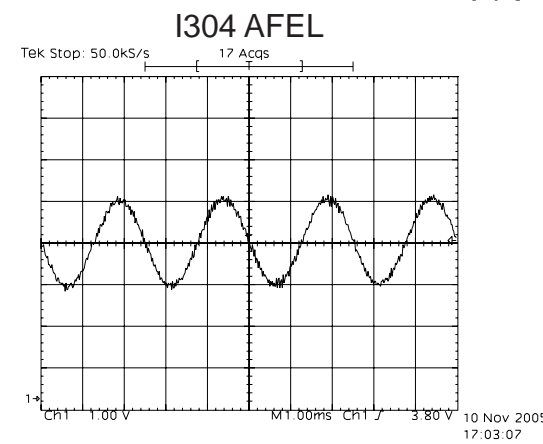
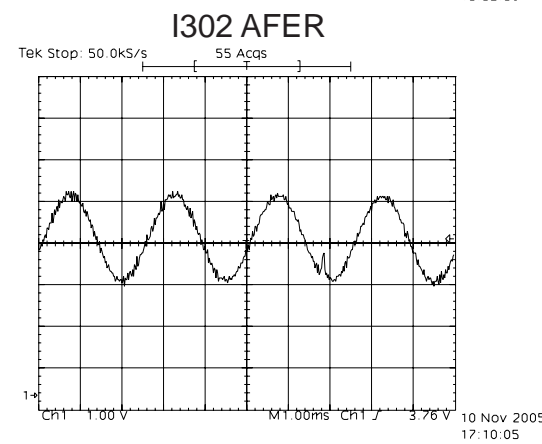
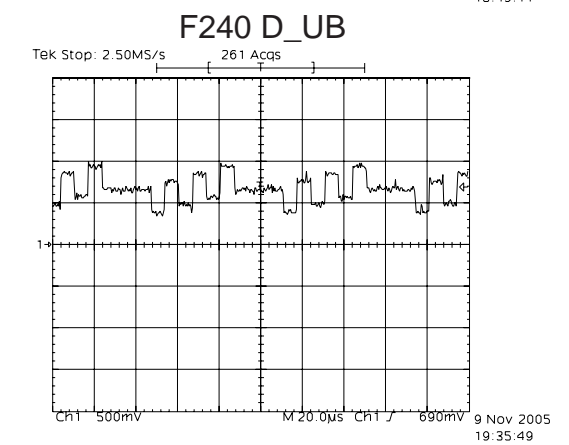
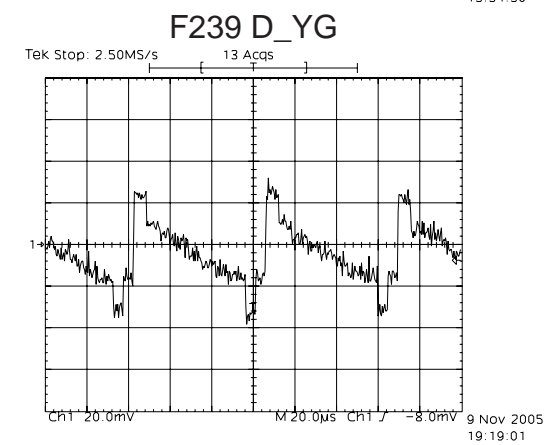
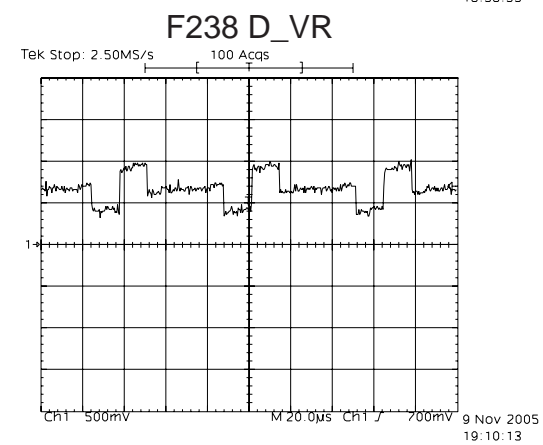
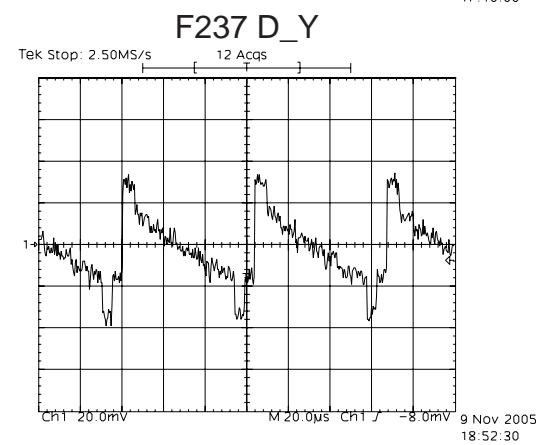
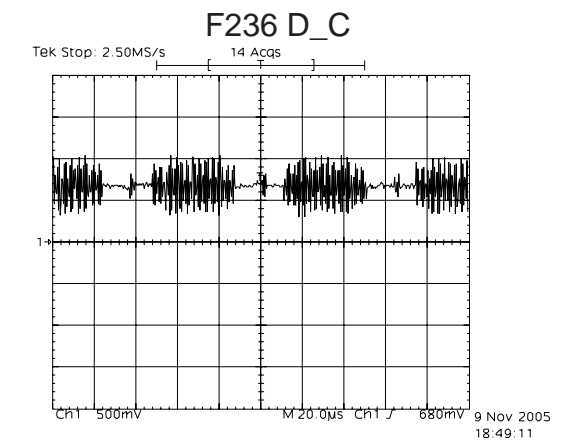
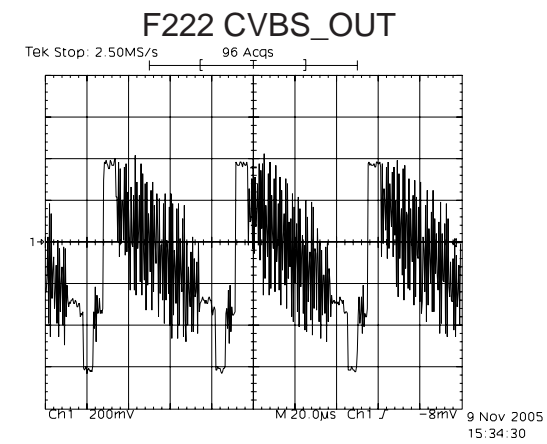
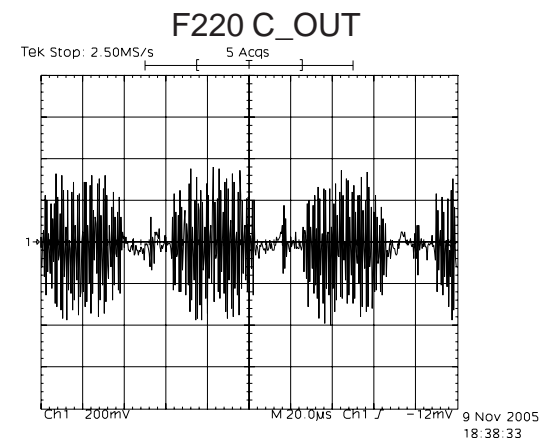
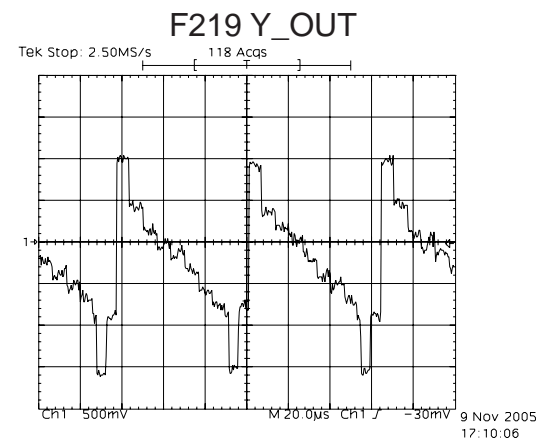
Note: To see the pin assignments, open the corresponding group by clicking the [+/-] icon(s) next to the left margin.
Hide all groups to see block diagram and interconnections in one screen.
Wire list is located at the bottom.



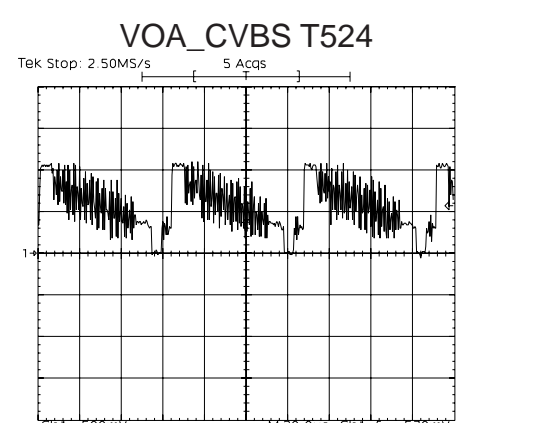
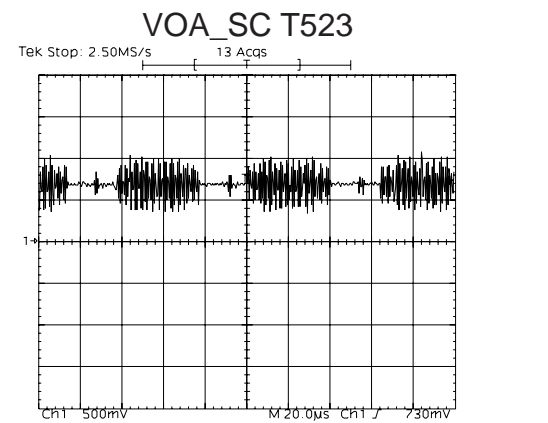
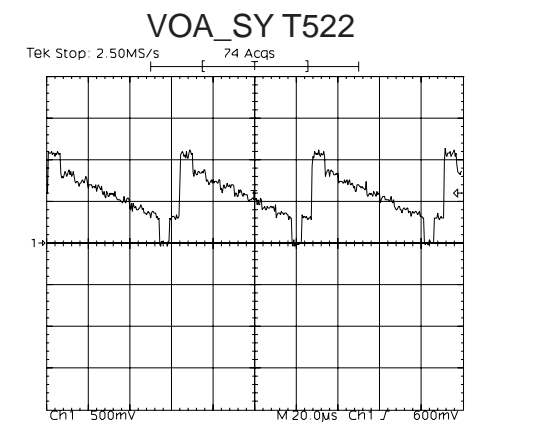
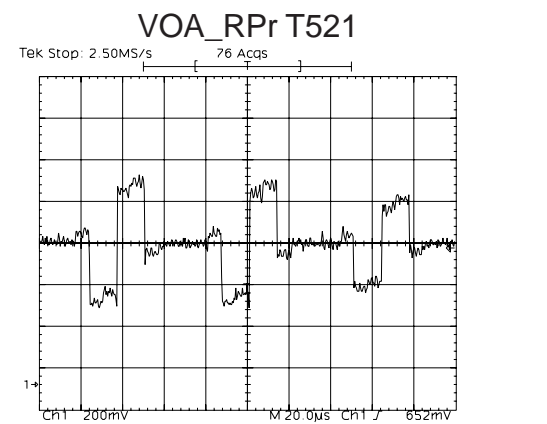
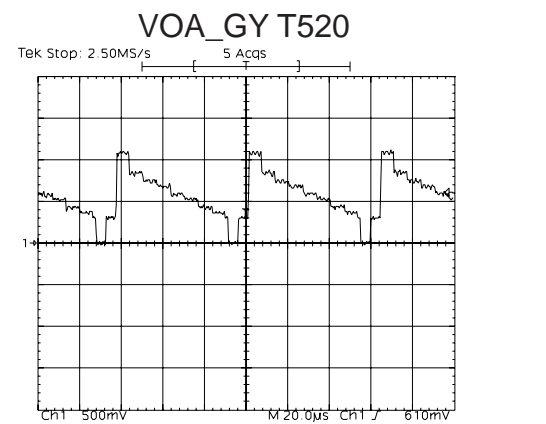
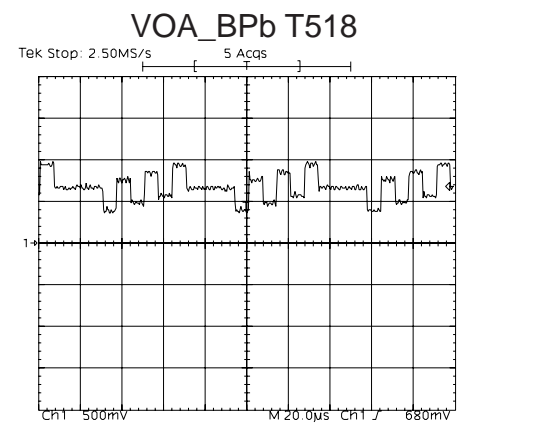
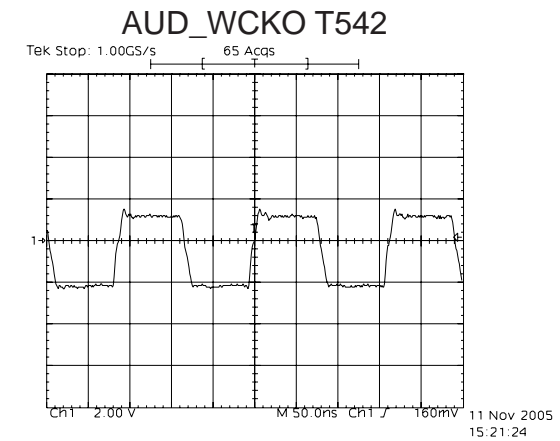
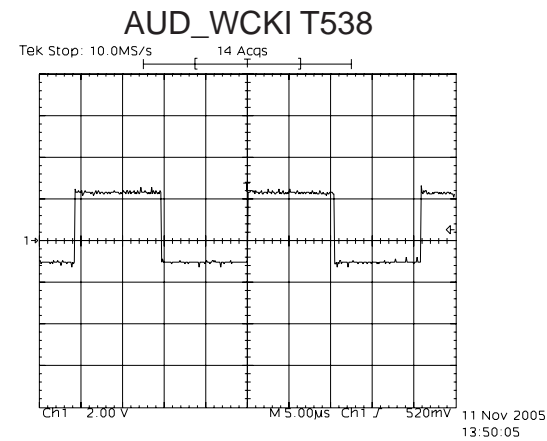
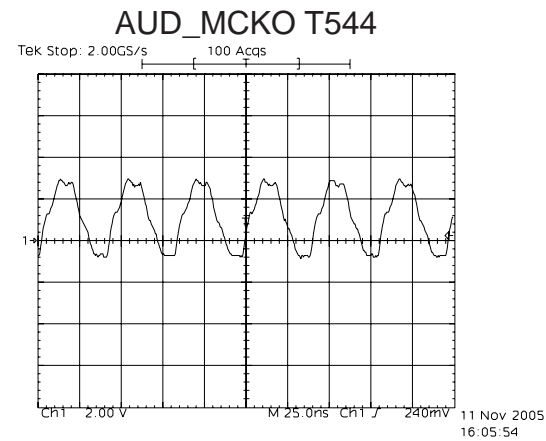
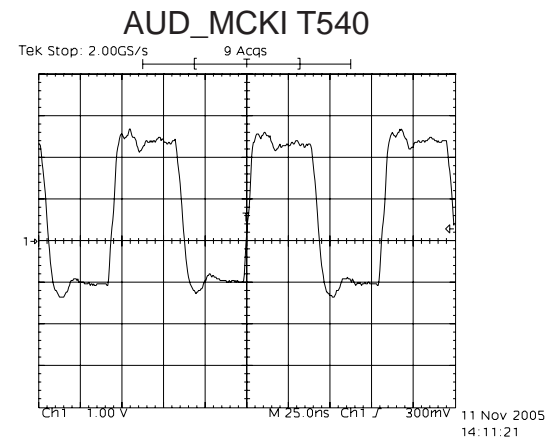
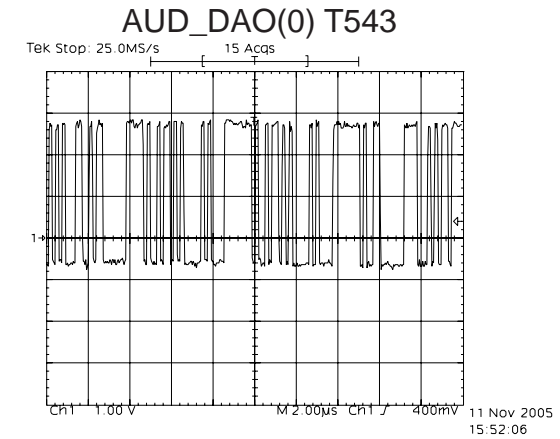
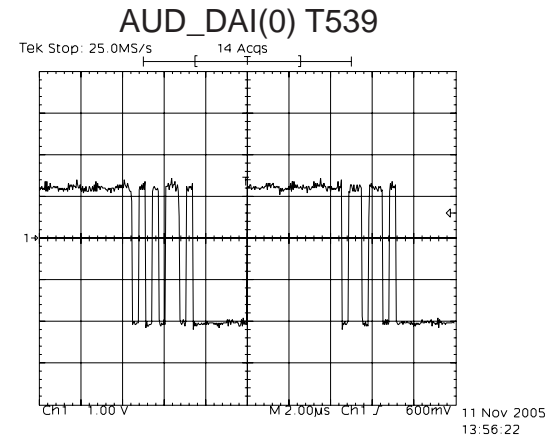
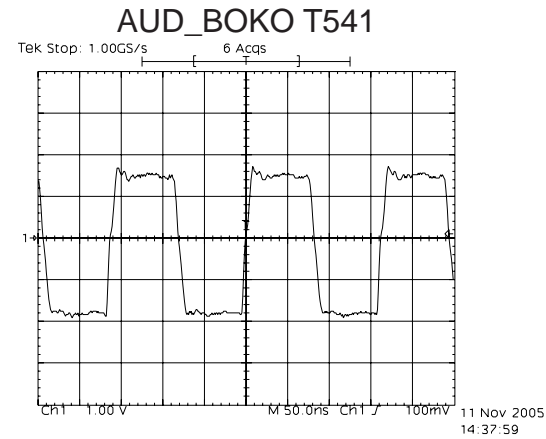
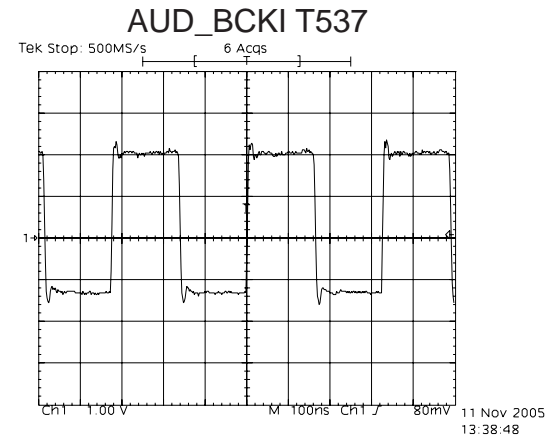
Item	12NC	Description	Remark
8000	2422 070 98202	MAINSCORD UL 6A 2M3 VH BK B	Mains cord (NAFTA)
8001	3139 151 02621	CBLE PH 4P2404P PH 265T BK	Front board AV input
8002	3139 241 01371	FFC FOIL 14P4804P RD 1MMMP	Front board communication ID
8003	3139 241 01361	FFC FOIL 20P2402P BD 1MMMP	Digital board communication ID
8004	3139 111 03991	FFC FOIL 22P2802ZP BD 1MMMP	Audio ID
8005	3139 110 35851	FFC FOIL 24P18024P BD 1MMMP	Video ID
8006	3139 110 28181	CWAS 11P411P4 120 6x5 BK 2x5	Analog board power supply
8012	3139 110 27881	CBLE PH 06P18006P PH 265T BK	Front board IEEE1394
8013	3139 110 37171	CBLE HR 02P22002P OE26 OS BK	Front board to Standby board
8021	3139 241 00921	CBLE IDE 40P28040P IDE UL	Hard disk drive IDE
8022	3139 241 00921	CBLE IDE 40P28040P IDE UL	Optical disk drive IDE
8031	3139 241 00472	CBLE HR 4P1804P LC UL	Hard disk drive power supply
8032	3139 241 01211	CBLE HR 04P2404P LC UL	Optical disk drive power supply
8033	3139 110 28301	CBLE PH 12P22012P PH 265T BK	Digital board power supply

Waveforms

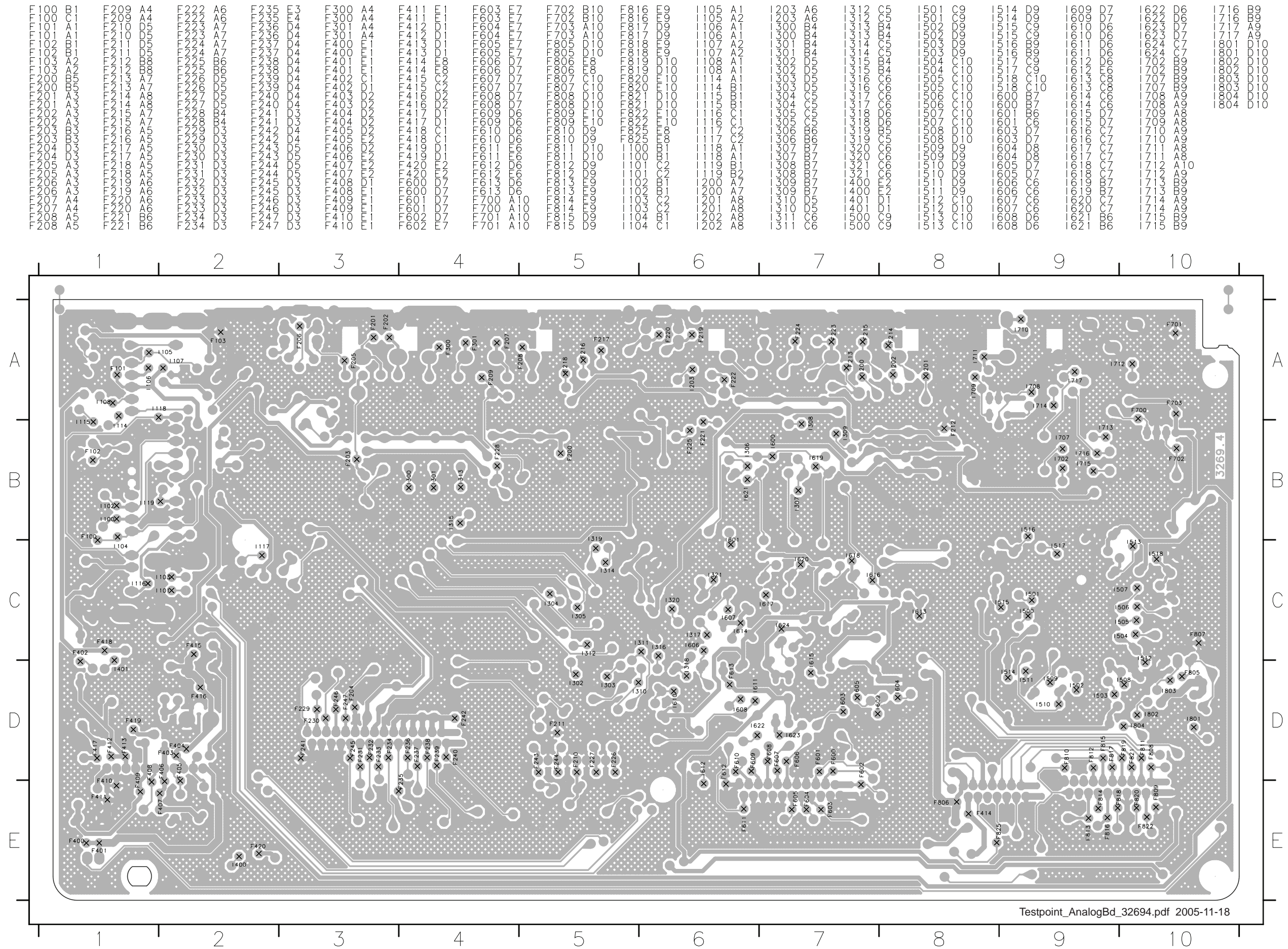
Waveforms of Analog Board



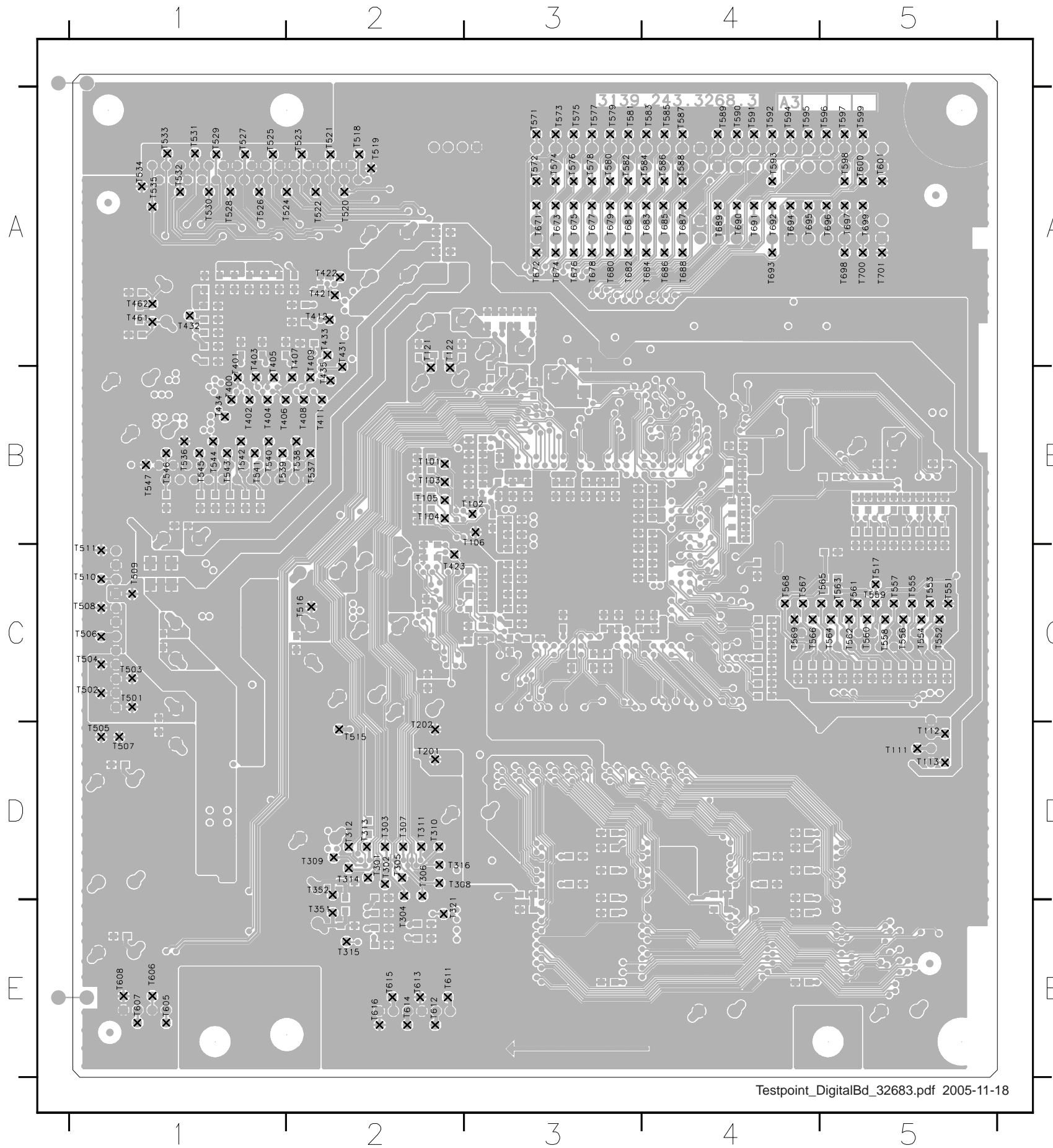
Waveforms of Digital Board



Test Points Overview for Analog Board



Test Points Overview for Digital Board

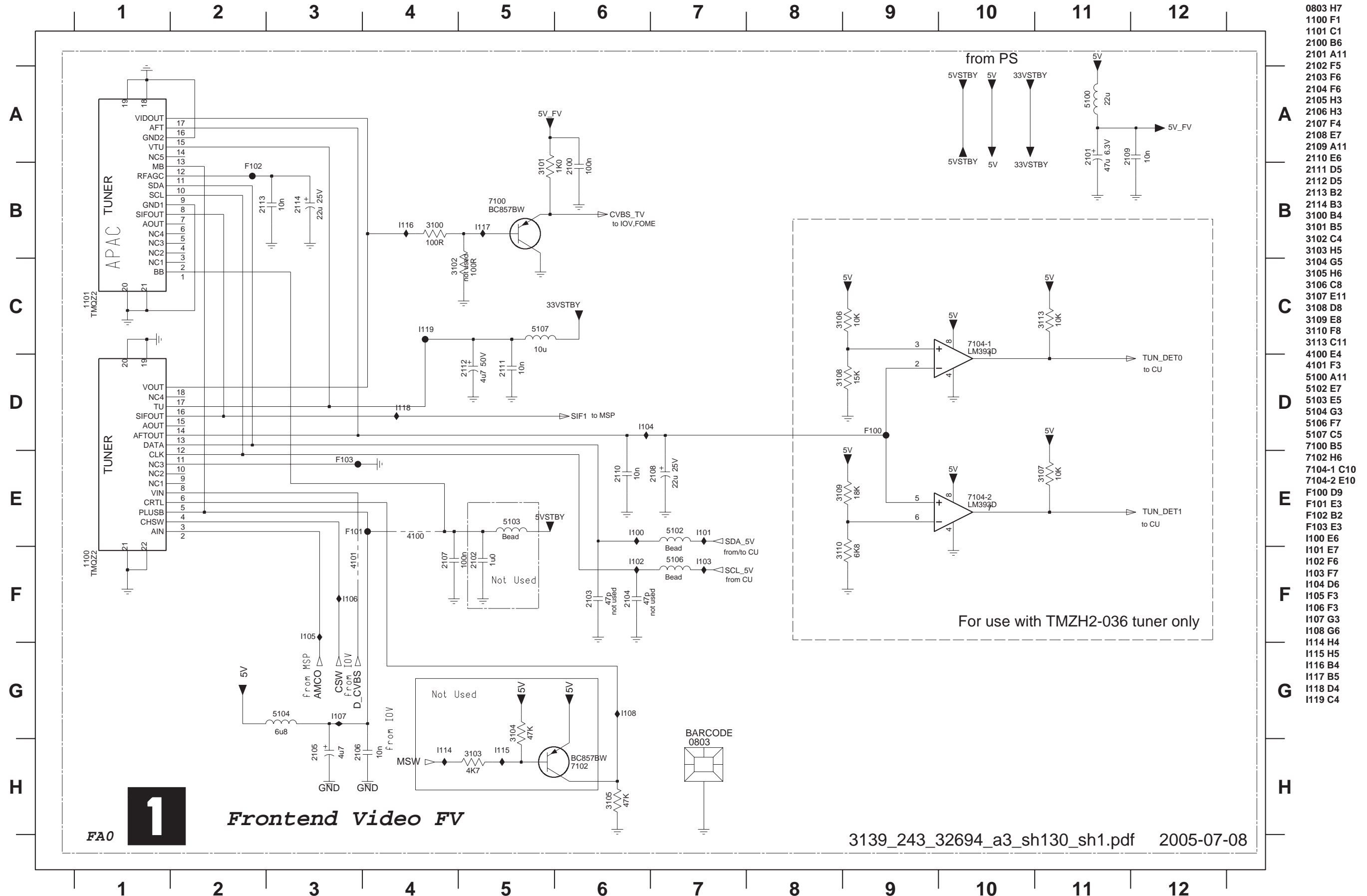


Testpoint_DigitalBd_32683.pdf 2005-11-18

T1534	T1535	T1532	T1531	T1529	T1528	T1527	T1525	T1524	T1523	T1522	T1520	T1519	T1518	T1517	T1516	T1515	T1514	T1513	T1512	T1511	T1510	T1509	T1508	T1506	T1504	T1503	T1501	T1500	T1507	T1505	T1502	T1501	T1507	T1516	T1515	T1202	T1201	T111	T113	T112	T110	T109	T108	T107	T106	T105	T104	T103	T102	T101	T100	T99	T98	T97	T96	T95	T94	T93	T92	T91	T90	T89	T88	T87	T86	T85	T84	T83	T82	T81	T80	T79	T78	T77	T76	T75	T74	T73	T72	T71	T70	T69	T68	T67	T66	T65	T64	T63	T62	T61	T60	T59	T58	T57	T56	T55	T54	T53	T52	T51	T50	T49	T48	T47	T46	T45	T44	T43	T42	T41	T40	T39	T38	T37	T36	T35	T34	T33	T32	T31	T30	T29	T28	T27	T26	T25	T24	T23	T22	T21	T20	T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1	T0	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17	T-18	T-19	T-20	T-21	T-22	T-23	T-24	T-25	T-26	T-27	T-28	T-29	T-30	T-31	T-32	T-33	T-34	T-35	T-36	T-37	T-38	T-39	T-40	T-41	T-42	T-43	T-44	T-45	T-46	T-47	T-48	T-49	T-50	T-51	T-52	T-53	T-54	T-55	T-56	T-57	T-58	T-59	T-60	T-61	T-62	T-63	T-64	T-65	T-66	T-67	T-68	T-69	T-70	T-71	T-72	T-73	T-74	T-75	T-76	T-77	T-78	T-79	T-80	T-81	T-82	T-83	T-84	T-85	T-86	T-87	T-88	T-89	T-90	T-91	T-92	T-93	T-94	T-95	T-96	T-97	T-98	T-99	T-100	T-101	T-102	T-103	T-104	T-105	T-106	T-107	T-108	T-109	T-110	T-111	T-112	T-113	T-114	T-115	T-116	T-117	T-118	T-119	T-120	T-121	T-122	T-123	T-124	T-125	T-126	T-127	T-128	T-129	T-130	T-131	T-132	T-133	T-134	T-135	T-136	T-137	T-138	T-139	T-140	T-141	T-142	T-143	T-144	T-145	T-146	T-147	T-148	T-149	T-150	T-151	T-152	T-153	T-154	T-155	T-156	T-157	T-158	T-159	T-160	T-161	T-162	T-163	T-164	T-165	T-166	T-167	T-168	T-169	T-170	T-171	T-172	T-173	T-174	T-175	T-176	T-177	T-178	T-179	T-180	T-181	T-182	T-183	T-184	T-185	T-186	T-187	T-188	T-189	T-190	T-191	T-192	T-193	T-194	T-195	T-196	T-197	T-198	T-199	T-200	T-201	T-202	T-203	T-204	T-205	T-206	T-207	T-208	T-209	T-210	T-211	T-212	T-213	T-214	T-215	T-216	T-217	T-218	T-219	T-220	T-221	T-222	T-223	T-224	T-225	T-226	T-227	T-228	T-229	T-230	T-231	T-232	T-233	T-234	T-235	T-236	T-237	T-238	T-239	T-240	T-241	T-242	T-243	T-244	T-245	T-246	T-247	T-248	T-249	T-250	T-251	T-252	T-253	T-254	T-255	T-256	T-257	T-258	T-259	T-260	T-261	T-262	T-263	T-264	T-265	T-266	T-267	T-268	T-269	T-270	T-271	T-272	T-273	T-274	T-275	T-276	T-277	T-278	T-279	T-280	T-281	T-282	T-283	T-284	T-285	T-286	T-287	T-288	T-289	T-290	T-291	T-292	T-293	T-294	T-295	T-296	T-297	T-298	T-299	T-300	T-301	T-302	T-303	T-304	T-305	T-306	T-307	T-308	T-309	T-310	T-311	T-312	T-313	T-314	T-315	T-316	T-317	T-318	T-319	T-320	T-321	T-322	T-323	T-324	T-325	T-326	T-327	T-328	T-329	T-330	T-331	T-332	T-333	T-334	T-335	T-336	T-337	T-338	T-339	T-340	T-341	T-342	T-343	T-344	T-345	T-346	T-347	T-348	T-349	T-350	T-351	T-352	T-353	T-354	T-355	T-356	T-357	T-358	T-359	T-360	T-361	T-362	T-363	T-364	T-365	T-366	T-367	T-368	T-369	T-370	T-371	T-372	T-373	T-374	T-375	T-376	T-377	T-378	T-379	T-380	T-381	T-382	T-383	T-384	T-385	T-386	T-387	T-388	T-389	T-390	T-391	T-392	T-393	T-394	T-395	T-396	T-397	T-398	T-399	T-400	T-401	T-402	T-403	T-404	T-405	T-406	T-407	T-408	T-409	T-410	T-411	T-412	T-413	T-414	T-415	T-416	T-417	T-418	T-419	T-420	T-421	T-422	T-423	T-424	T-425	T-426	T-427	T-428	T-429	T-430	T-431	T-432	T-433	T-434	T-435	T-436	T-437	T-438	T-439	T-440	T-441	T-442	T-443	T-444	T-445	T-446	T-447	T-448	T-449	T-450	T-451	T-452	T-453	T-454	T-455	T-456	T-457	T-458	T-459	T-460	T-461	T-462	T-463	T-464	T-465	T-466	T-467	T-468	T-469	T-470	T-471	T-472	T-473	T-474	T-475	T-476	T-477	T-478	T-479	T-480	T-481	T-482	T-483	T-484	T-485	T-486	T-487	T-488	T-489	T-490	T-491	T-492	T-493	T-494	T-495	T-496	T-497	T-498	T-499	T-500	T-501	T-502	T-503	T-504	T-505	T-506	T-507	T-508	T-509	T-510	T-511	T-512	T-513	T-514	T-515	T-516	T-517	T-518	T-519	T-520	T-521	T-522	T-523	T-524	T-525	T-526	T-527	T-528	T-529	T-530	T-531	T-532	T-533	T-534	T-535	T-536	T-537	T-538	T-539	T-540	T-541	T-542	T-543	T-544	T-545	T-546	T-547	T-548	T-549	T-550	T-551	T-552	T-553	T-554	T-555	T-556	T-557	T-558	T-559	T-560	T-561	T-562	T-563	T-564	T-565	T-566	T-567	T-568	T-569	T-570	T-571	T-572	T-573	T-574	T-575	T-576	T-577	T-578	T-579	T-580	T-581	T-582	T-583	T-584	T-585	T-586	T-587	T-588	T-589	T-590	T-591	T-592	T-593	T-594	T-595	T-596	T-597	T-598	T-599	T-600	T-601	T-602	T-603	T-604	T-605	T-606	T-607	T-608	T-609	T-610	T-611	T-612	T-613	T-614	T-615	T-616	T-617	T-618	T-619	T-620	T-621	T-622	T-623	T-624	T-625	T-626	T-627	T-628	T-629	T-630	T-631	T-632	T-633	T-634	T-635	T-636	T-637	T-638	T-639	T-640	T-641	T-642	T-643	T-644	T-645	T-646	T-647	T-648	T-649	T-650	T-651	T-652	T-653	T-654	T-655	T-656	T-657	T-658	T-659	T-660	T-661	T-662	T-663	T-664	T-665	T-666	T-667	T-668	T-669	T-670	T-671	T-672	T-673	T-674	T-675	T-676	T-677	T-678	T-679	T-680	T-681	T-682	T-683	T-684	T-685	T-686	T-687	T-688	T-689	T-690	T-691	T-692	T-693	T-694	T-695	T-696	T-697	T-698	T-699	T-700	T-701	T-702	T-703	T-704	T-705	T-706	T-707	T-708	T-709	T-710	T-711	T-712	T-713	T-714	T-715	T-716	T-717	T-718	T-719	T-720	T-721	T-722	T-723	T-724	T-725	T-726	T-727	T-728	T-729	T-730	T-731	T-732	T-733	T-734	T-735	T-736	T-737	T-738	T-739	T-740	T-741	T-742	T-743	T-744	T-745	T-746	T-747	T-748	T-749	T-750	T-751	T-752	T-753	T-754	T-755	T-756	T-757	T-758	T-759	T-760	T-761	T-762	T-763	T-764	T-765	T-766	T-767	T-768	T-769	T-770	T-771	T-772	T-773	T-774	T-775	T-776	T-777	T-778	T-779	T-780	T-781	T-782	T-783	T-784	T-785	T-786	T-787	T-788	T-789	T-790	T-791	T-792	T-793	T-794	T-795	T-796	T-797	T-798	T-799	T-800	T-801	T-802	T-803	T-804	T-805	T-806	T-807	T-808	T-809	T-810	T-811	T-812	T-813	T-814	T-815	T-816	T-817	T-818	T-819	T-820	T-821	T-822	T-823	T-824	T-825	T-826	T-827	T-828	T-829	T-830	T-831	T-832	T-833	T-834	T-835	T-836	T-837	T-838	T-839	T-840	T-841	T-842	T-843	T-844	T-845	T-846	T-847	T-848	T-849	T-850	T-851	T-852	T-853	T-854	T-855	T-856	T-857	T-858	T-859	T-860	T-861	T-862	T-863	T-864	T-865	T-866	T-867	T-868	T-869	T-870	T-871	T-872	T-873	T-874	T-875	T-876	T-877	T-878	T-879	T-880	T-881	T-882	T-883	T-884	T-885	T-886	T-887	T-888	T-889	T-890	T-891	T-892	T-893	T-894	T-895	T-896	T-897	T-898	T-899	T-900	T-901	T-902	T-903	T-904	T-905	T-906	T-907	T-908	T-909	T-910	T-911	T-912	T-913	T-914	T-915	T-916	T-917	T-918	T-919	T-920	T-921	T-922	T-923	T-924	T-925	T-926	T-927	T-928	T-929	T-930	T-931	T-932	T-933	T-934	T-935	T-936	T-937	T-938	T-939	T-940	T-941	T-942	T-943	T-944	T-945	T-946	T-947	T-948	T-949	T-950	T-951	T-952	T-953	T-954	T-955	T-956	T-957	T-958	T-959	T-960	T-961	T-962	T-963	T-964	T-965	T-966	T-967	T-968	T-969	T-970	T-971	T-972	T-973	T-974	T-975	T-976	T-977	T-978	T-979	T-980	T-981	T-982	T-983	T-984	T-985	T-986	T-987	T-988	T-989	T-990	T-991	T-992	T-993	T-994	T-995	T-996	T-997	T-998	T-999	T-1000	T-1001	T-1002	T-1003	T-1004	T-1005	T-1006	T-1007	T-1008	T-1009	T-1010	T-1011	T-1012	T-1013	T-1014	T-1015	T-1016	T-1017	T-1018	T-1019	T-1020	T-1021	T-1022	T-1023	T-1024	T-1025	T-1026	T-1027	T-1028	T-1029	T-1030	T-1031	T-1032	T-1033	T-1034	T-1035	T-1036	T-1037	T-1038	T-1039	T-1040	T-1041	T-1042	T-1043	T-1044	T-1045	T-1046	T-1047	T-1048	T-1049	T-1050	T-1051	T-1052	T-1053	T-1054	T-1055	T-1056	T-1057	T-1058	T-1059	T-1060	T-1061	T-1062	T-1063	T-1064	T-1065	T-1066	T-1067	T-1068	T-1069	T-1070	T-1071	T-1072	T-1073	T-1074	T-1075	T-1076	T-1077	T-1078	T-1079	T-1080	T-1081	T-1082	T-1083	T-1084	T-1085	T-1086	T-1087	T-1088	T-1089	T-1090	T-1091	T-1092	T-1093	T-1094	T-1095	T-1096	T-1097	T-1098	T-1099	T-1100	T-1101	T-1102	T-1103	T-1104	T-1105	T-1106	T-1107	T-1108	T-1109	T-1110	T-1111	T-1112	T-1113	T-1114	T-1115	T-1116	T-1117	T-1118	T-1119	T-1120	T-1121	T-1122	T-1123	T-
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	----

7. Circuit Diagrams and PWB Layouts

Analog: Frontend Video (FV)



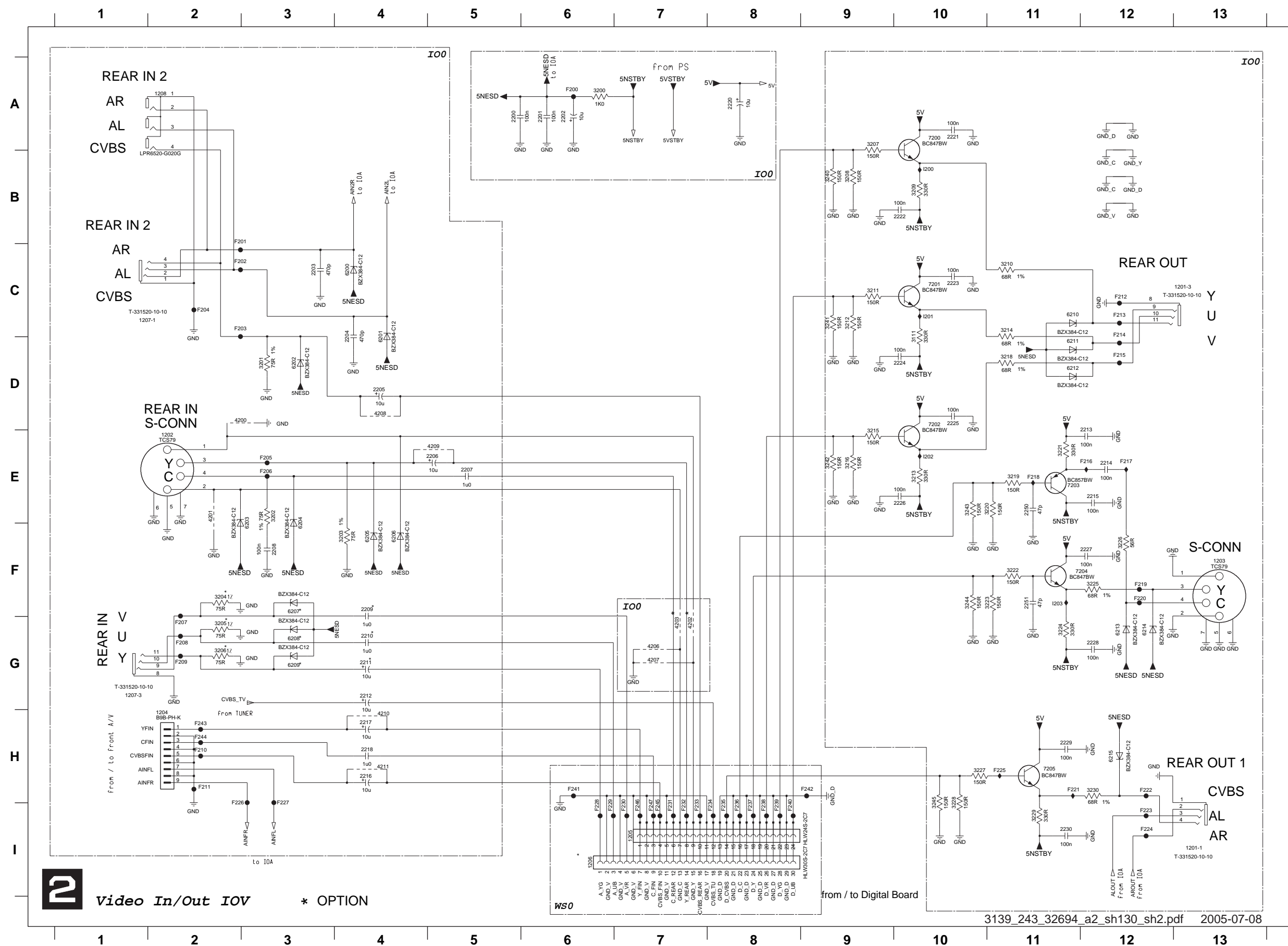
- 0803 H7
- 1100 F1
- 1101 C1
- 2100 B6
- 2101 A11
- 2102 F5
- 2103 F6
- 2104 F6
- 2105 H3
- 2106 H3
- 2107 F4
- 2108 E7
- 2109 A11
- 2110 E6
- 2111 D5
- 2112 D5
- 2113 B2
- 2114 B3
- 3100 B4
- 3101 B5
- 3102 C4
- 3103 H5
- 3104 G5
- 3105 H6
- 3106 C8
- 3107 E11
- 3108 D8
- 3109 E8
- 3110 F8
- 3113 C11
- 4100 E4
- 4101 F3
- 5100 A11
- 5102 E7
- 5103 E5
- 5104 G3
- 5106 F7
- 5107 C5
- 7100 B5
- 7102 H6
- 7104-1 C10
- 7104-2 E10
- F100 D9
- F101 E3
- F102 B2
- F103 E3
- I100 E6
- I101 E7
- I102 F6
- I103 F7
- I104 D6
- I105 F3
- I106 F3
- I107 G3
- I108 G6
- I114 H4
- I115 H5
- I116 B4
- I117 B5
- I118 D4
- I119 C4



Frontend Video FV

For use with TMZH2-036 tuner only

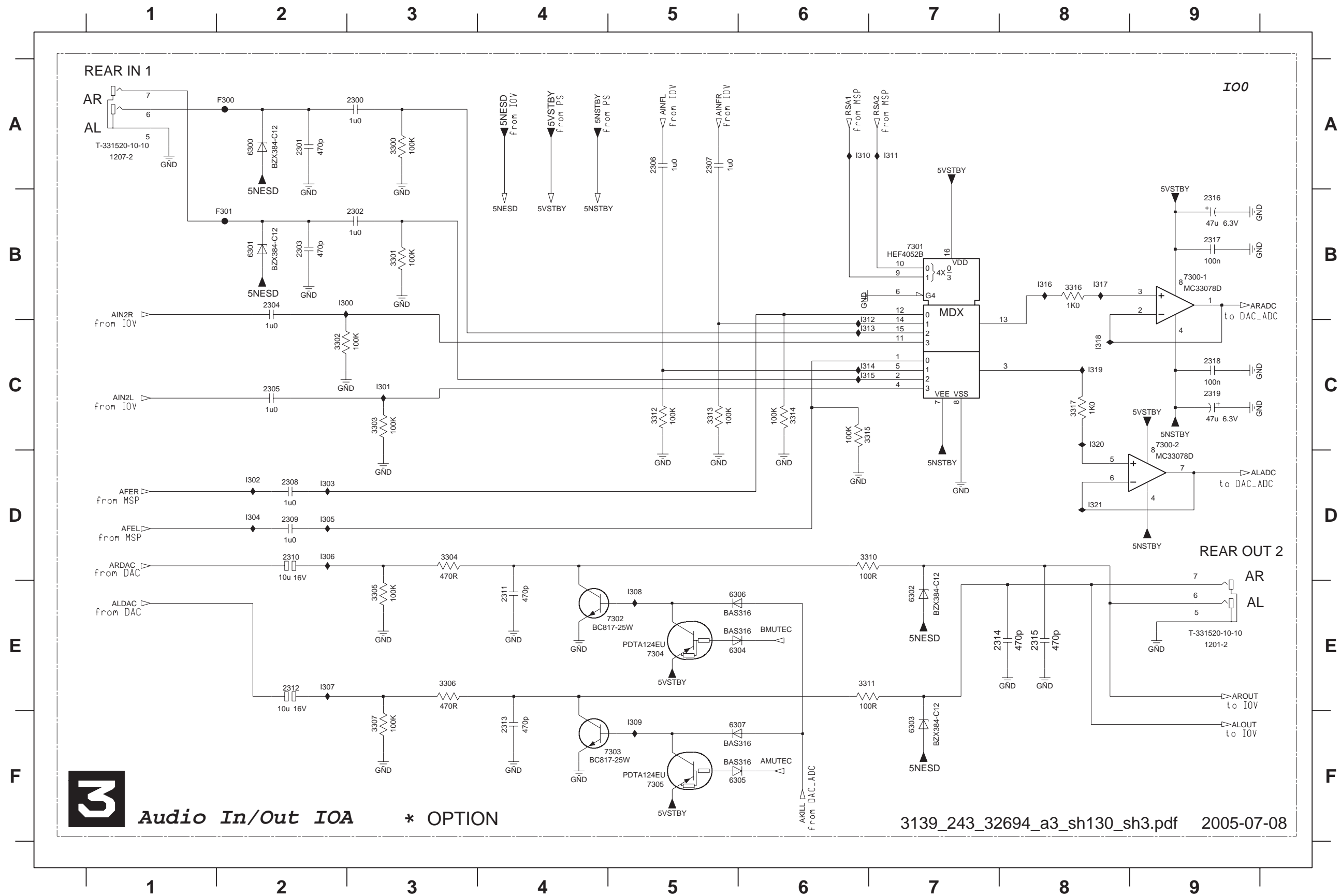
Analog: Video In / Out (IOV)



- 1201-1 H3
- 1201-3 C13
- 1202 E2
- 1203 F13
- 1204 H2
- 1205 I7
- 1206 I6
- 1207-1 C1
- 1207-3 G1
- 1208 A2
- 2200 A5
- 2201 A6
- 2202 A6
- 2203 C3
- 2204 C4
- 2205 D4
- 2206 E5
- 2207 E5
- 2208 F3
- 2209 F4
- 2210 G4
- 2211 G4
- 2212 G4
- 2213 E12
- 2214 E12
- 2215 E12
- 2216 H4
- 2217 H4
- 2218 H4
- 2220 A8
- 2221 A10
- 2222 B10
- 2223 C10
- 2224 D10
- 2225 D10
- 2226 E10
- 2227 F12
- 2228 G12
- 2229 H11
- 2230 H11
- 2250 E11
- 2251 F11
- 3111 C10
- 3200 A6
- 3201 D3
- 3202 E3
- 3203 F4
- 3204 F2
- 3205 G2
- 3206 G2
- 3207 A9
- 3208 B9
- 3209 B10
- 3210 C11
- 3211 C9
- 3212 C9
- 3213 E10
- 3214 C11
- 3215 E9
- 3216 E9
- 3218 D11
- 3219 E11
- 3220 E11
- 3221 E11
- 3222 F11
- 3223 F11
- 3224 G11
- 3225 F12
- 3226 F12
- 3227 H10
- 3228 H10
- 3229 H11
- 3230 H12
- 3240 B9
- 3241 C9
- 3242 E9
- 3243 E10
- 3244 F10
- 3245 H10
- 4200 D2
- 4201 E2
- 4202 G7
- 4203 G7
- 4206 G7
- 4207 G7
- 4208 D4
- 4209 E5
- 4210 H4
- 4211 H4
- 6200 C4
- 6201 C4
- 6202 D3
- 6203 E3
- 6204 E3
- 6205 F4
- 6206 F4
- 6207 F3
- 6208 G3
- 6209 G3
- 6210 C11
- 6211 D11
- 6212 D11
- 6213 G12
- 6214 G12
- 6215 H12
- 7200 A10
- 7201 C10
- 7202 D10
- 7203 E11
- 7204 F11
- 7205 H11
- F200 A6
- F201 B2
- F202 C2
- F203 C2
- F204 C2
- F205 E3
- F206 E3
- F207 G2
- F208 G2
- F209 G2
- F210 H2
- F211 H2
- F212 C12
- F213 C12
- F214 C12
- F215 D12
- F216 E12
- F217 E12
- F218 E11
- F219 F12
- F220 F12
- F221 H11
- F222 H12
- F223 H12
- F224 H12
- F225 H11
- F226 I2
- F227 I3
- F228 I6
- F229 I6
- F230 I7
- F231 I7
- F232 I7
- F233 I7
- F234 I8
- F235 I8
- F236 I8
- F237 I8
- F238 I8
- F239 I8
- F240 I8
- F241 H6
- F242 H6
- F243 H2
- F244 H2
- F245 I7
- F246 I7
- F247 I7
- I200 B10
- I201 C10
- I202 E10
- I203 F11

2 Video In/Out IOV * OPTION

Analog: Audio In / Out (IOA)



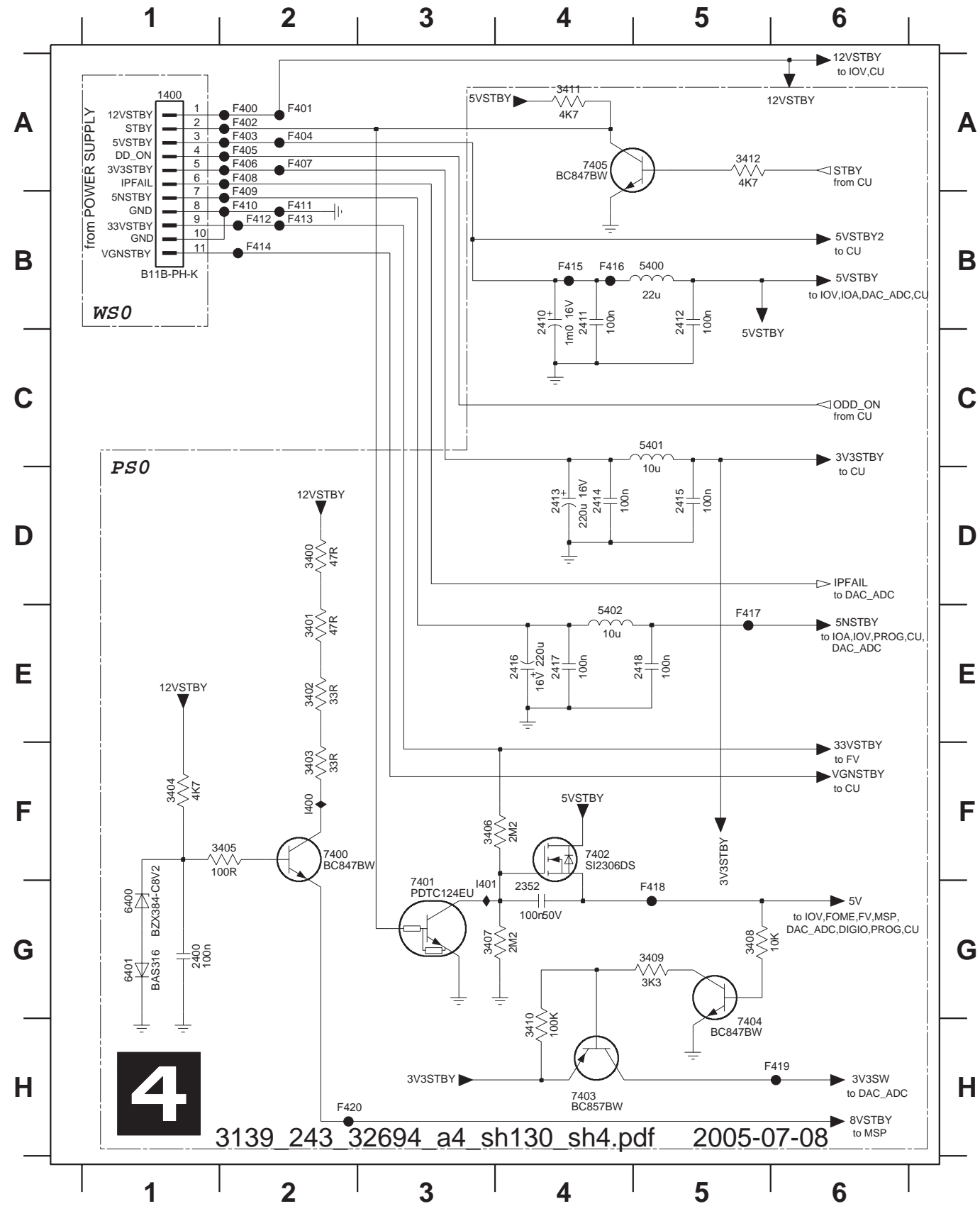
Audio In/Out IOA * OPTION

3139_243_32694_a3_sh130_sh3.pdf 2005-07-08

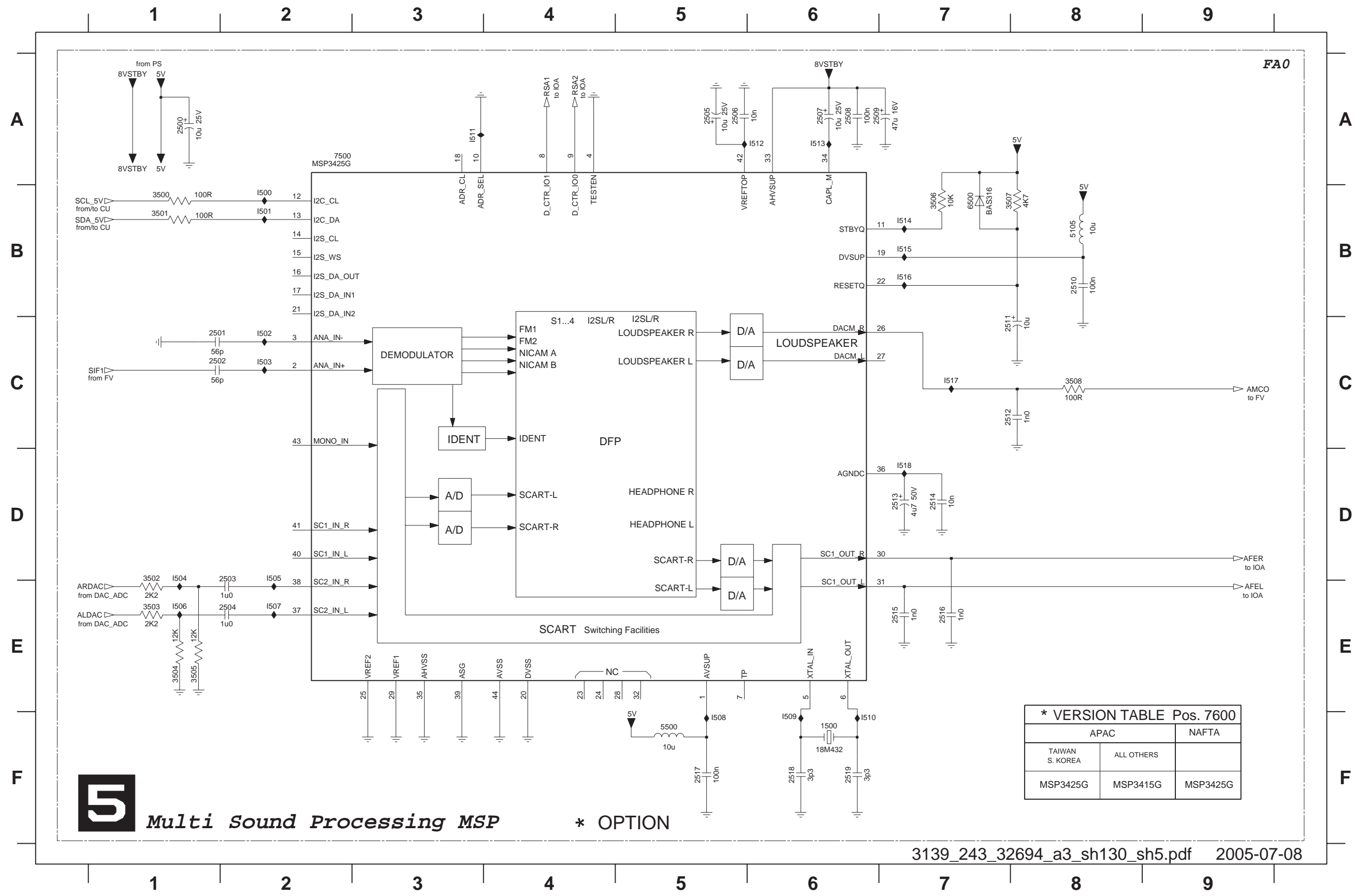
- 1201-2 E9
- 1207-2 A1
- 2300 A3
- 2301 A2
- 2302 B3
- 2303 B2
- 2304 B2
- 2305 C2
- 2306 A5
- 2307 A5
- 2308 D2
- 2309 D2
- 2310 D2
- 2311 E4
- 2312 E2
- 2313 F4
- 2314 E8
- 2315 E8
- 2316 B9
- 2317 B9
- 2318 C9
- 2319 C9
- 3300 A3
- 3301 B3
- 3302 C2
- 3303 C3
- 3304 D3
- 3305 E3
- 3306 E3
- 3307 F3
- 3310 D6
- 3311 E6
- 3312 C5
- 3313 C5
- 3314 C6
- 3315 C6
- 3316 B8
- 3317 C8
- 6300 A2
- 6301 B2
- 6302 E7
- 6303 F7
- 6304 E5
- 6305 F5
- 6306 E5
- 6307 F5
- 7300-1 B9
- 7300-2 C9
- 7301 B7
- 7302 E5
- 7303 F5
- 7304 E5
- 7305 F5
- F300 A2
- F301 B2
- I300 B2
- I301 C3
- I302 D2
- I303 D2
- I304 D2
- I305 D2
- I306 D2
- I307 E2
- I308 E5
- I309 F5
- I310 A6
- I311 A7
- I312 B6
- I313 C6
- I314 C6
- I315 C6
- I316 B8
- I317 B8
- I318 C8
- I319 C8
- I320 C8
- I321 D8

Analog: Power Supply (PS)

1400 A1	2412 B5	2417 E4	3403 F2	3408 G5	5400 B5	7400 F2	7405 A4	F404 A2	F409 B2	F414 B2	F419 H6
2352 G4	2413 D4	2418 E5	3404 F1	3409 G5	5401 C5	7401 G3	F400 A2	F405 A2	F410 B2	F415 B4	F420 H2
2400 G1	2414 D4	3400 D2	3405 F2	3410 H4	5402 E4	7402 F4	F401 A2	F406 A2	F411 B2	F416 B4	I400 F2
2410 B4	2415 D5	3401 E2	3406 F3	3411 A4	6400 G1	7403 H4	F402 A2	F407 A2	F412 B2	F417 E5	I401 G3
2411 B4	2416 E4	3402 E2	3407 G3	3412 A5	6401 G1	7404 H5	F403 A2	F408 A2	F413 B2	F418 G5	



Analog: Multi Sound Processing (MSP)



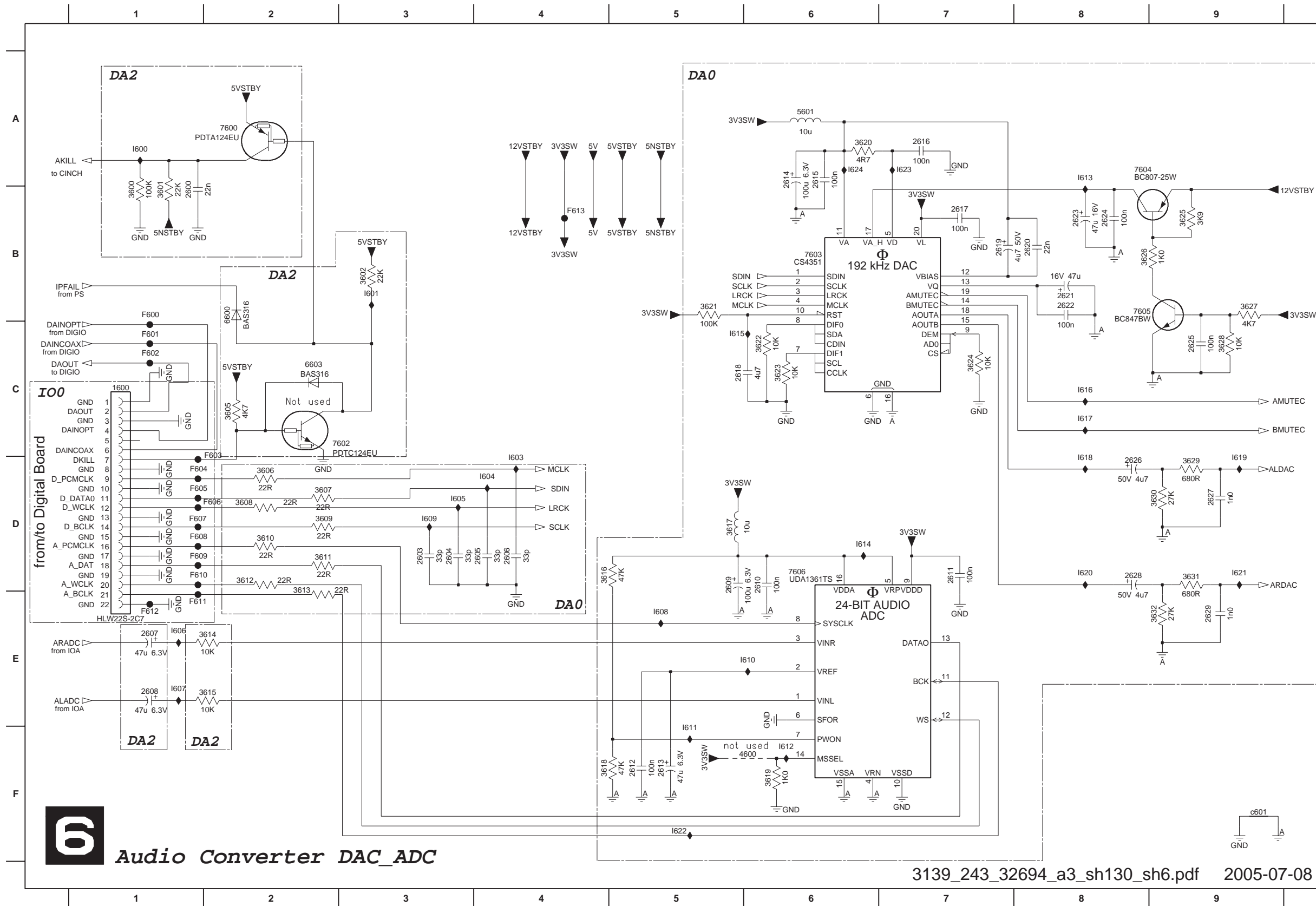
- 1500 F6
- 2500 A1
- 2501 C1
- 2502 C1
- 2503 E2
- 2504 E2
- 2505 A5
- 2506 A5
- 2507 A6
- 2508 A6
- 2509 A6
- 2510 B8
- 2511 C7
- 2512 C7
- 2513 D7
- 2514 D7
- 2515 E7
- 2516 E7
- 2517 F5
- 2518 F6
- 2519 F6
- 3500 B1
- 3501 B1
- 3502 E1
- 3503 E1
- 3504 E1
- 3505 E1
- 3506 B7
- 3507 B8
- 3508 C8
- 5105 B8
- 5500 F5
- 6500 B7
- 7500 A2
- I500 B2
- I501 B2
- I502 C2
- I503 C2
- I504 D1
- I505 D2
- I506 E1
- I507 E2
- I508 F5
- I509 F6
- I510 F6
- I511 A3
- I512 A6
- I513 A6
- I514 B7
- I515 B7
- I516 B7
- I517 C7
- I518 D7

*** VERSION TABLE Pos. 7600**

APAC		NAFTA
TAIWAN S. KOREA	ALL OTHERS	
MSP3425G	MSP3415G	MSP3425G

5 Multi Sound Processing MSP * OPTION

Analog: Audio Converter (DAC_ADC)

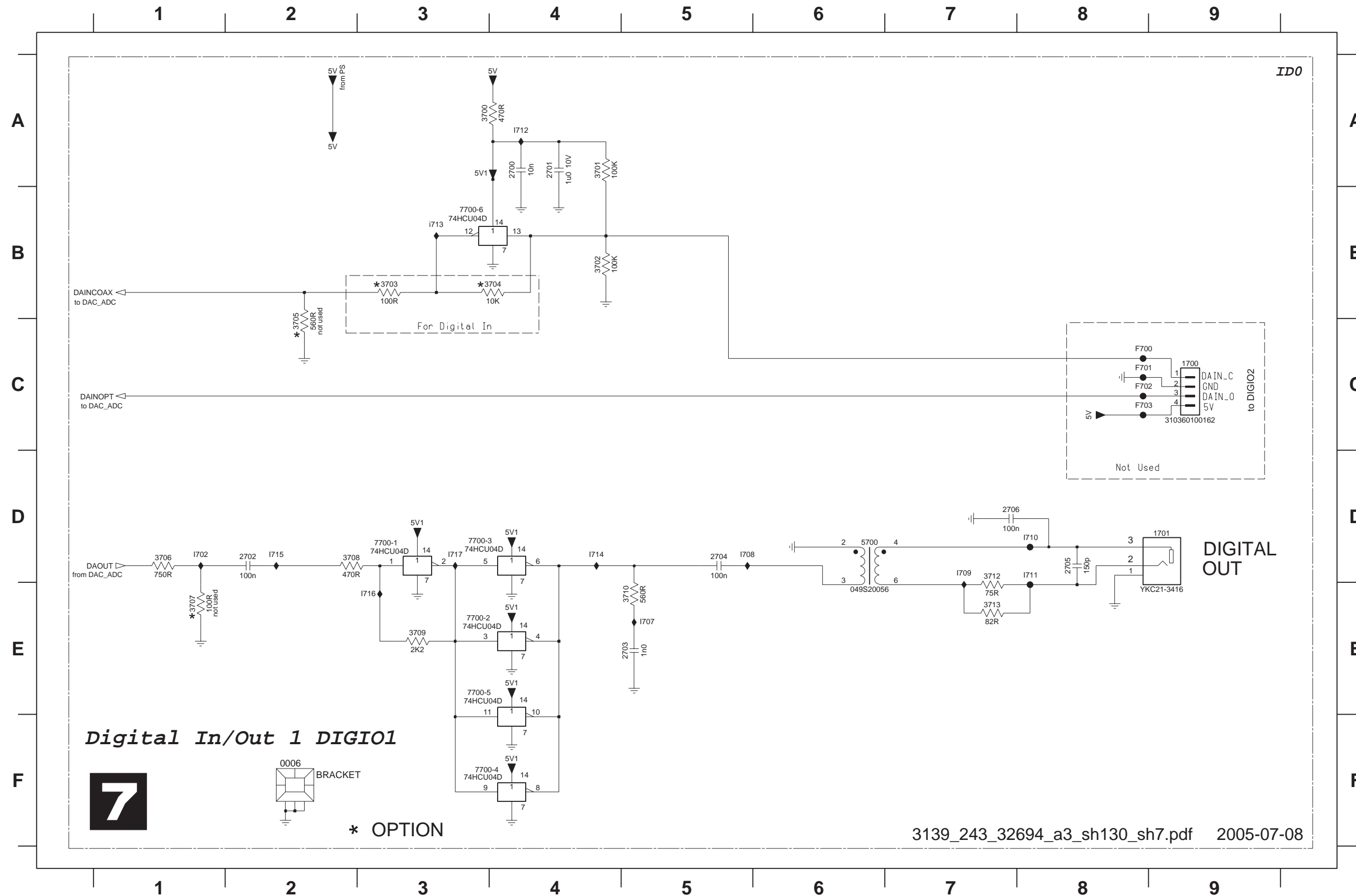


1600 C1	F606 D2
2600 B1	F607 D1
2603 D3	F608 D1
2604 D3	F609 D1
2605 D4	F610 D1
2606 D4	F611 E1
2607 E1	F612 E1
2608 E1	F613 B4
2609 D5	I600 A1
2610 D6	I601 B3
2611 D7	I603 D4
2612 F5	I604 D4
2613 F5	I605 D3
2614 A6	I606 E1
2615 A6	I607 E1
2616 A7	I608 E5
2617 B7	I609 D3
2618 C5	I610 E6
2619 B7	I611 F5
2620 B8	I612 F6
2621 B8	I613 A8
2622 B8	I614 D6
2623 B8	I615 C5
2624 B8	I616 C8
2625 C9	I617 C8
2626 D8	I618 D8
2627 D9	I619 D9
2628 D8	I620 D8
2629 E9	I621 D9
3600 B1	I622 F5
3601 B1	I623 A7
3602 B3	I624 A6
3605 C2	c601 F9
3606 D2	
3607 D2	
3608 D2	
3609 D2	
3610 D2	
3611 D2	
3612 D2	
3613 E2	
3614 E2	
3615 E2	
3616 D4	
3617 D5	
3618 F4	
3619 F6	
3620 A6	
3621 B5	
3622 C6	
3623 C6	
3624 C7	
3625 B9	
3626 B8	
3627 B9	
3628 C9	
3629 D9	
3630 D9	
3631 D9	
3632 E9	
4600 F6	
5601 A6	
6600 B2	
6603 C2	
7600 A2	
7602 C2	
7603 B6	
7604 A8	
7605 B9	
7606 D6	
F600 B1	
F601 C1	
F602 C1	
F603 D2	
F604 D1	
F605 D1	



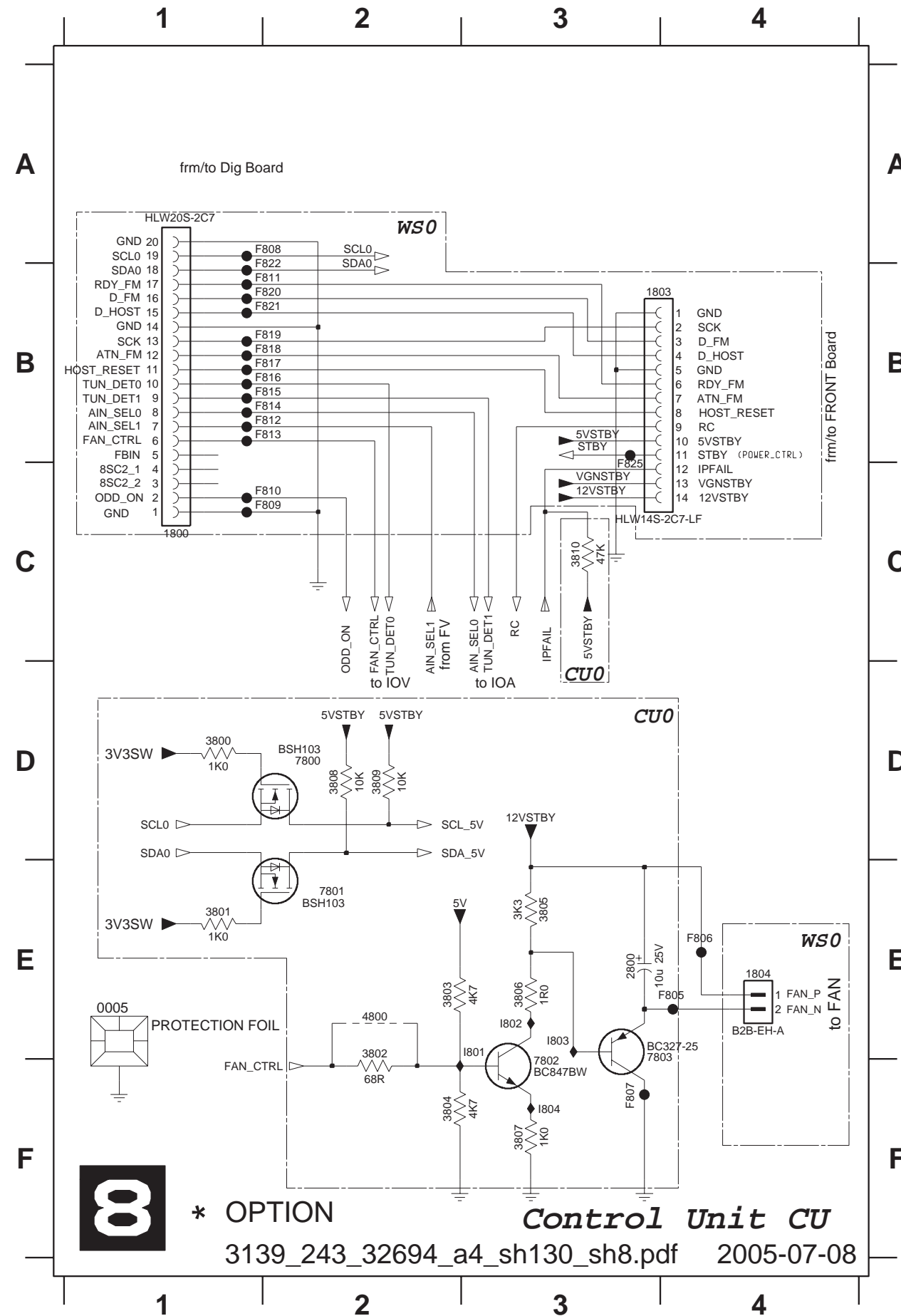
Audio Converter DAC_ADC

Analog: Digital In / Out 1 (DIGIO 1)



- 0006 F2
- 1700 C9
- 1701 D9
- 2700 A4
- 2701 A4
- 2702 D2
- 2703 E5
- 2704 D5
- 2705 D8
- 2706 D7
- 3700 A3
- 3701 A4
- 3702 B4
- 3703 B3
- 3704 B4
- 3705 C2
- 3706 D1
- 3707 E1
- 3708 D2
- 3709 E3
- 3710 E5
- 3712 D7
- 3713 E7
- 5700 D6
- 7700-1 D3
- 7700-2 E4
- 7700-3 D4
- 7700-4 F4
- 7700-5 E4
- 7700-6 B3
- F700 C8
- F701 C8
- F702 C8
- F703 C8
- I702 D1
- I707 E5
- I708 D5
- I709 D7
- I710 D8
- I711 D8
- I712 A4
- I713 B3
- I714 D4
- I715 D2
- I716 E3
- I717 D3

Analog: Control Unit (CU)



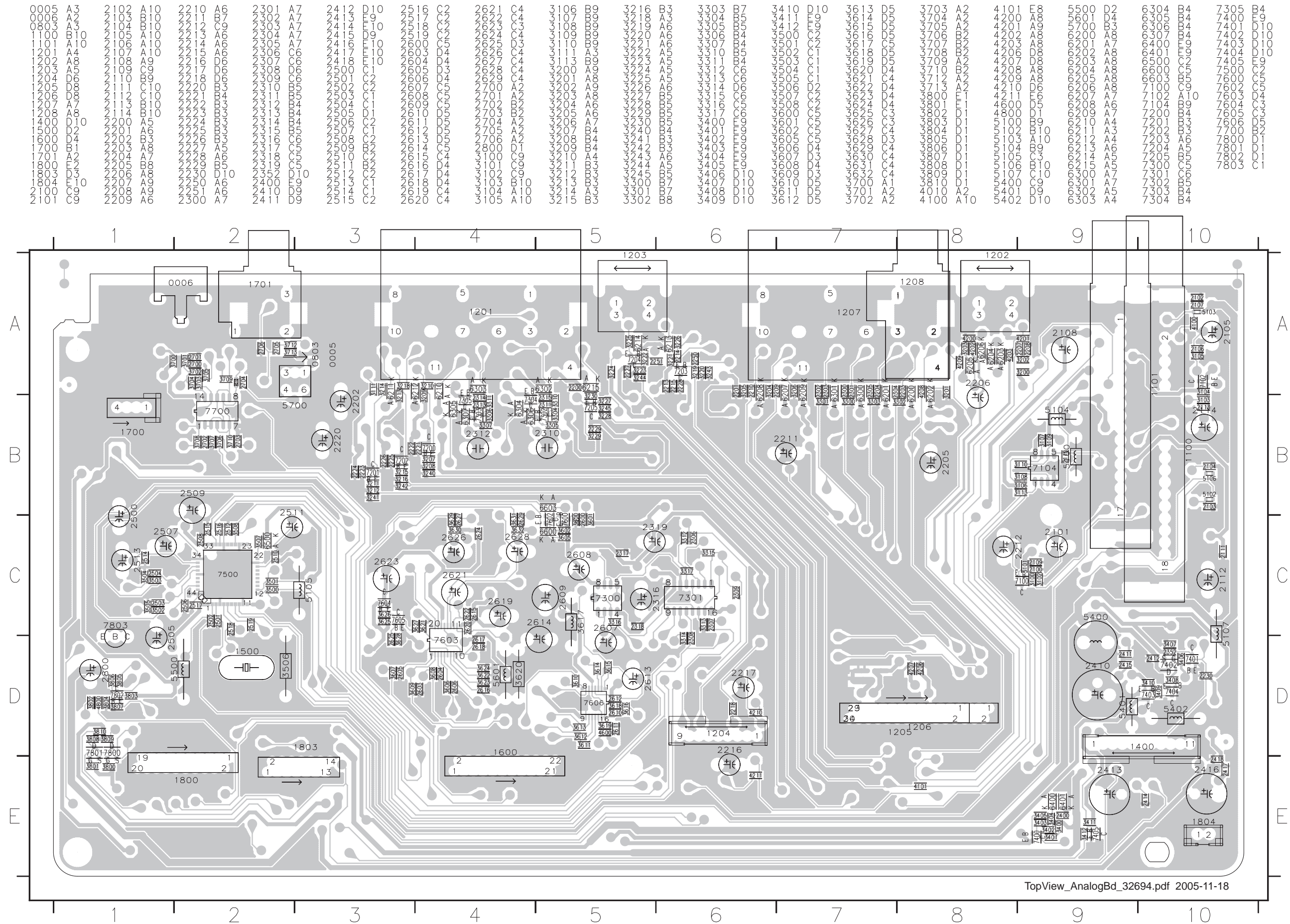
- 0005 E1
- 1800 C1
- 1803 B3
- 1804 E4
- 2800 E3
- 3800 D1
- 3801 E1
- 3802 E2
- 3803 E2
- 3804 F2
- 3805 E3
- 3806 E3
- 3807 F3
- 3808 D2
- 3809 D2
- 3810 C3
- 4800 E2
- 7800 D2
- 7801 E2
- 7802 F3
- 7803 E3
- F805 E4
- F806 E4
- F807 F3
- F808 A2
- F809 C2
- F810 C2
- F811 B2
- F812 B2
- F813 B2
- F814 B2
- F815 B2
- F816 B2
- F817 B2
- F818 B2
- F819 B2
- F820 B2
- F821 B2
- F822 B2
- F825 C3
- I801 E3
- I802 E3
- I803 E3
- I804 F3

* OPTION

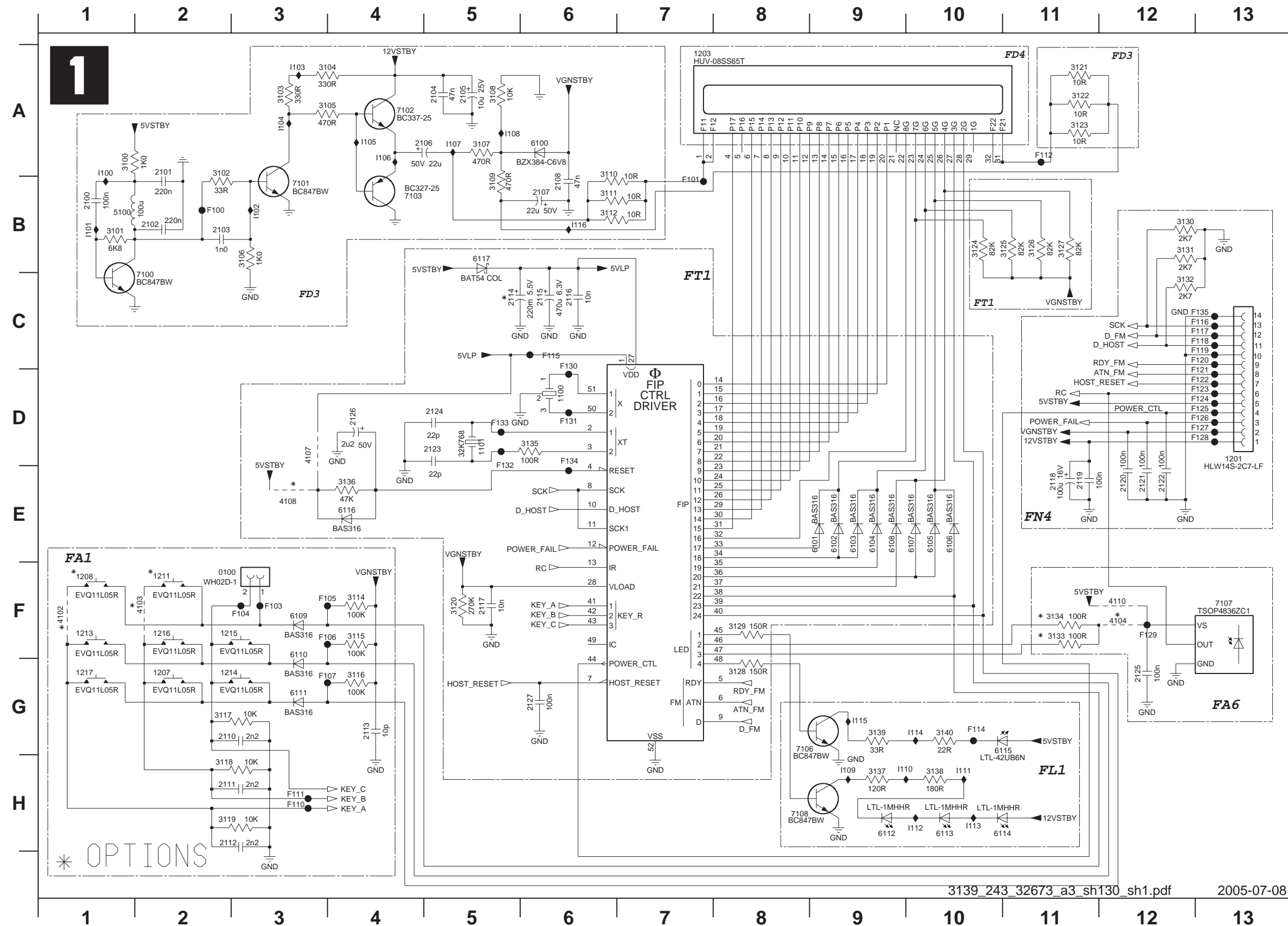
Control Unit CU

3139_243_32694_a4_sh130_sh8.pdf 2005-07-08

Layout: Analog-Main Part (Top View)

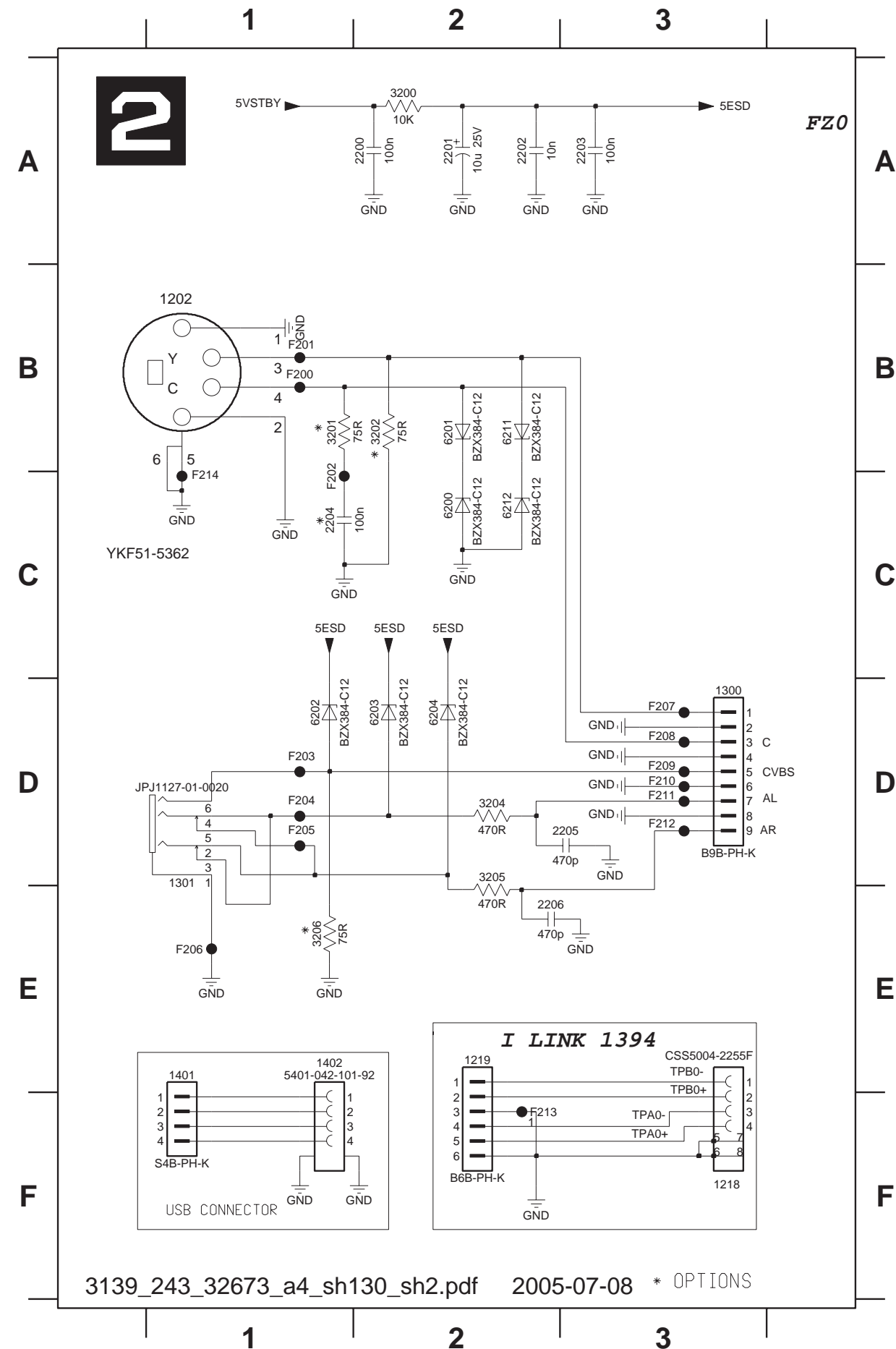


Front: Front Panel - Display



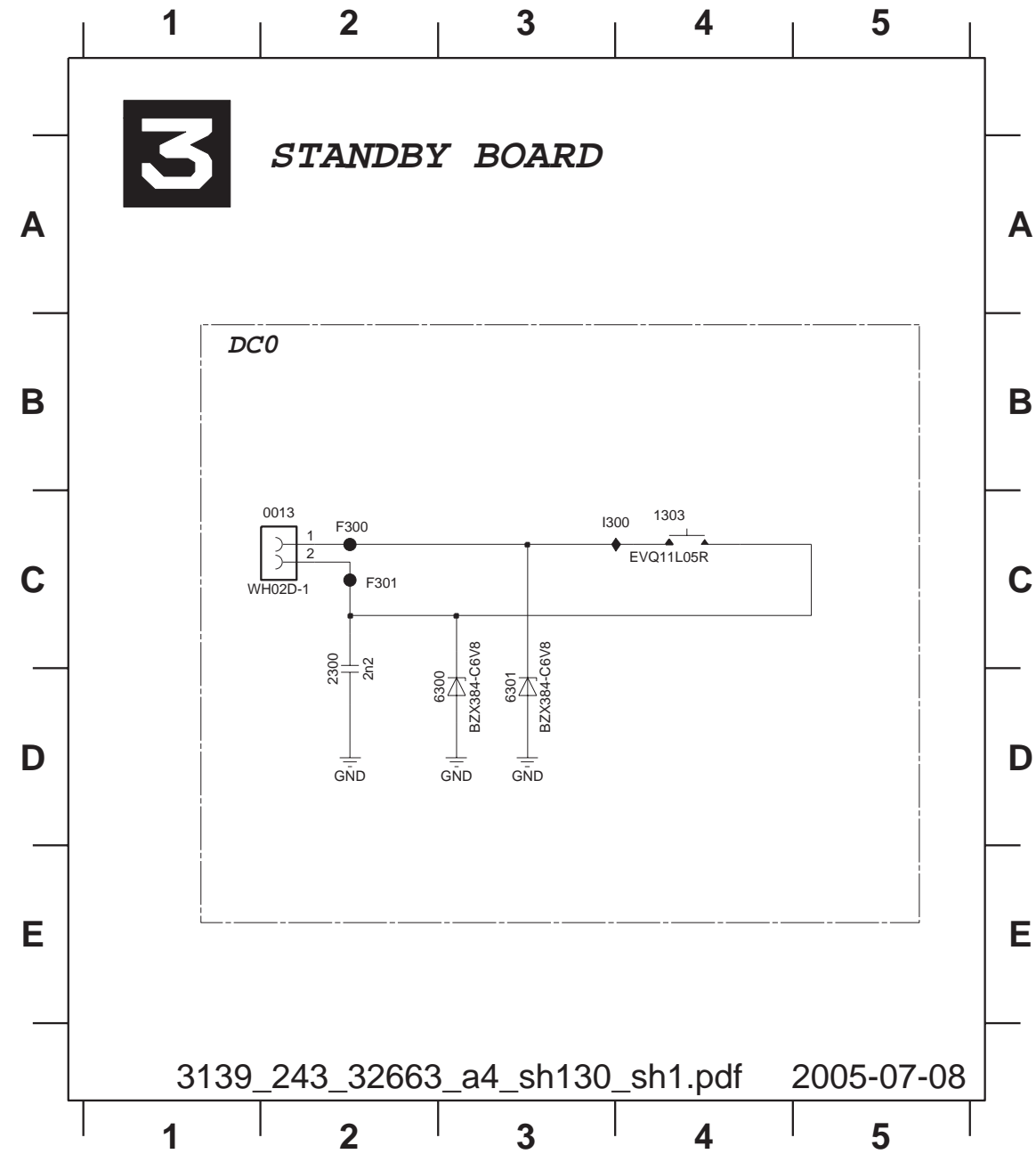
0100	F2	3138	H10	I110	H9
1100	D6	3139	G9	I111	H10
1101	D5	3140	G10	I112	H10
1201	D13	4102	F1	I113	H10
1203	A7	4103	F2	I114	G10
1207	G2	4104	F12	I115	G9
1208	F1	4107	D3	I116	B6
1211	F2	4108	E3		
1213	F1	4110	F12		
1214	G2	5100	B1		
1215	F2	6100	A6		
1216	F2	6101	E9		
1217	G1	6102	E9		
2100	B1	6103	E9		
2101	A2	6104	E9		
2102	B2	6105	E10		
2103	B2	6106	E10		
2104	A5	6107	E10		
2105	A5	6108	E9		
2106	A4	6109	F3		
2107	B6	6110	F3		
2108	B6	6111	G3		
2110	G2	6112	H9		
2111	H2	6113	H10		
2112	H2	6114	H11		
2113	G4	6115	G11		
2114	C5	6116	E4		
2115	C6	6117	B5		
2116	C6	7100	C2		
2117	F5	7101	B3		
2118	E11	7102	A4		
2119	E11	7103	B4		
2120	E12	7106	G8		
2121	E12	7107	F13		
2122	E12	7108	H8		
2123	D5	F100	B2		
2124	D5	F101	B7		
2125	G12	F103	F3		
2126	D4	F104	F3		
2127	G6	F105	F3		
3100	A1	F106	F3		
3101	B1	F107	G3		
3102	A2	F110	H3		
3103	A3	F111	H3		
3104	A3	F112	A11		
3105	A3	F114	G10		
3106	B3	F115	C6		
3107	A5	F116	C13		
3108	A5	F117	C13		
3109	B5	F118	C13		
3110	B6	F119	C13		
3111	B6	F120	C13		
3112	B6	F121	D13		
3114	F4	F122	D13		
3115	F4	F123	D13		
3116	G4	F124	D13		
3117	G2	F125	D13		
3118	H2	F126	D13		
3119	H2	F127	D13		
3120	F5	F128	D13		
3121	A11	F129	F12		
3122	A11	F130	C6		
3123	A11	F131	D6		
3124	B10	F132	E5		
3125	B11	F133	D5		
3126	B11	F134	D6		
3127	B11	F135	C13		
3128	G8	I100	A1		
3129	F8	I101	B1		
3130	B12	I102	B3		
3131	B12	I103	A3		
3132	C12	I104	A3		
3133	F11	I105	A4		
3134	F11	I106	A4		
3135	D6	I107	A5		
3136	E4	I108	A5		
3137	H9	I109	H9		

Front: Front Panel - Audio/Video-In



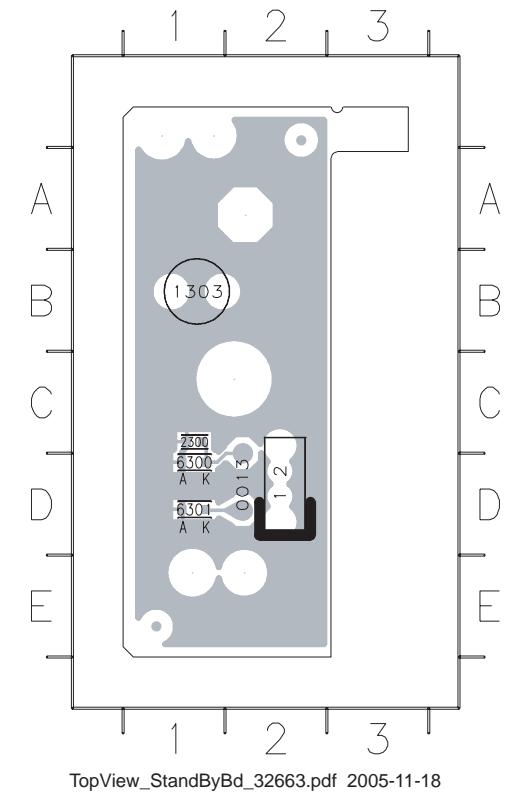
- 1202 B1
- 1218 F3
- 1219 E2
- 1300 D3
- 1301 D1
- 1401 E1
- 1402 E1
- 2200 A2
- 2201 A2
- 2202 A2
- 2203 A3
- 2204 C1
- 2205 D3
- 2206 E2
- 3200 A2
- 3201 B1
- 3202 B2
- 3204 D2
- 3205 D2
- 3206 E1
- 6200 C2
- 6201 B2
- 6202 D1
- 6203 D2
- 6204 D2
- 6211 B2
- 6212 C2
- F200 B1
- F201 B1
- F202 C1
- F203 D1
- F204 D1
- F205 D1
- F206 E1
- F207 D3
- F208 D3
- F209 D3
- F210 D3
- F211 D3
- F212 D3
- F213 F2
- F214 C1

Front: Standby

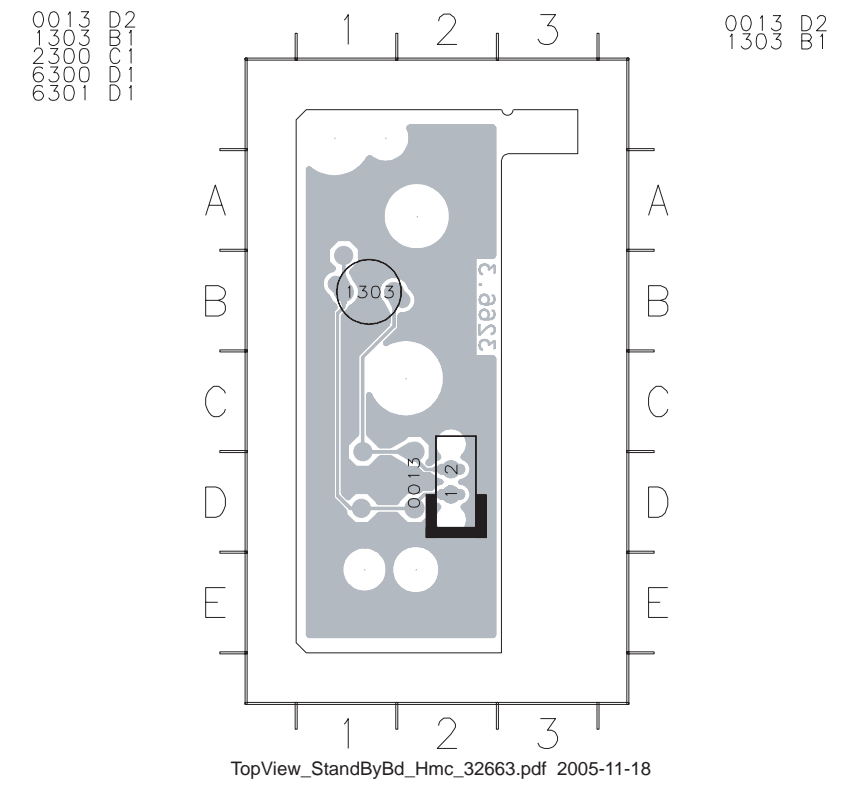


- 0013 C2
- 1303 C4
- 2300 D2
- 6300 D3
- 6301 D3
- F300 C2
- F301 C2
- I300 C4

Layout: Standby (Top View)



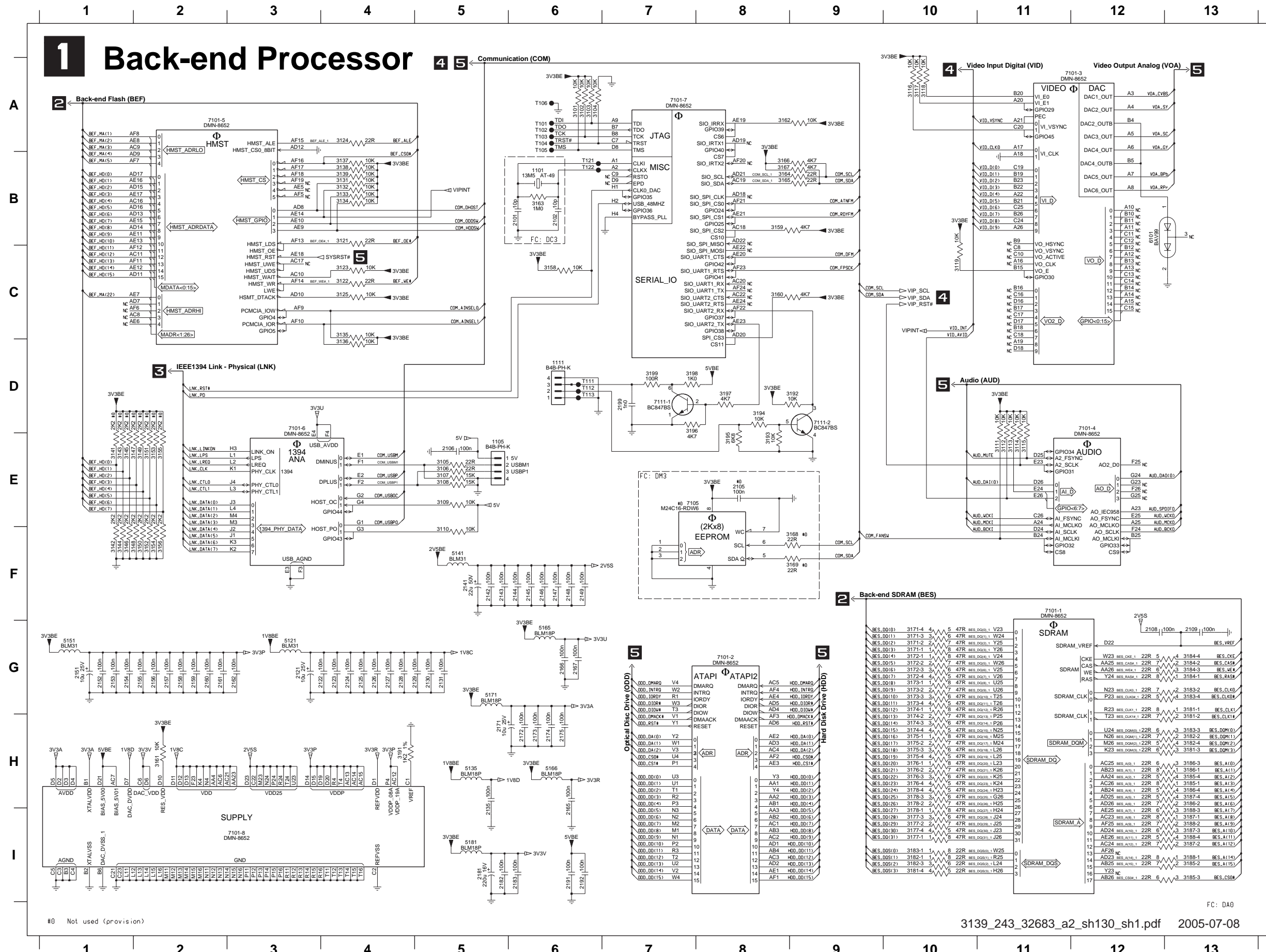
Layout: Standby (Bottom View)



- 0013 D2
- 1303 B1

Digital: Back-End Processor

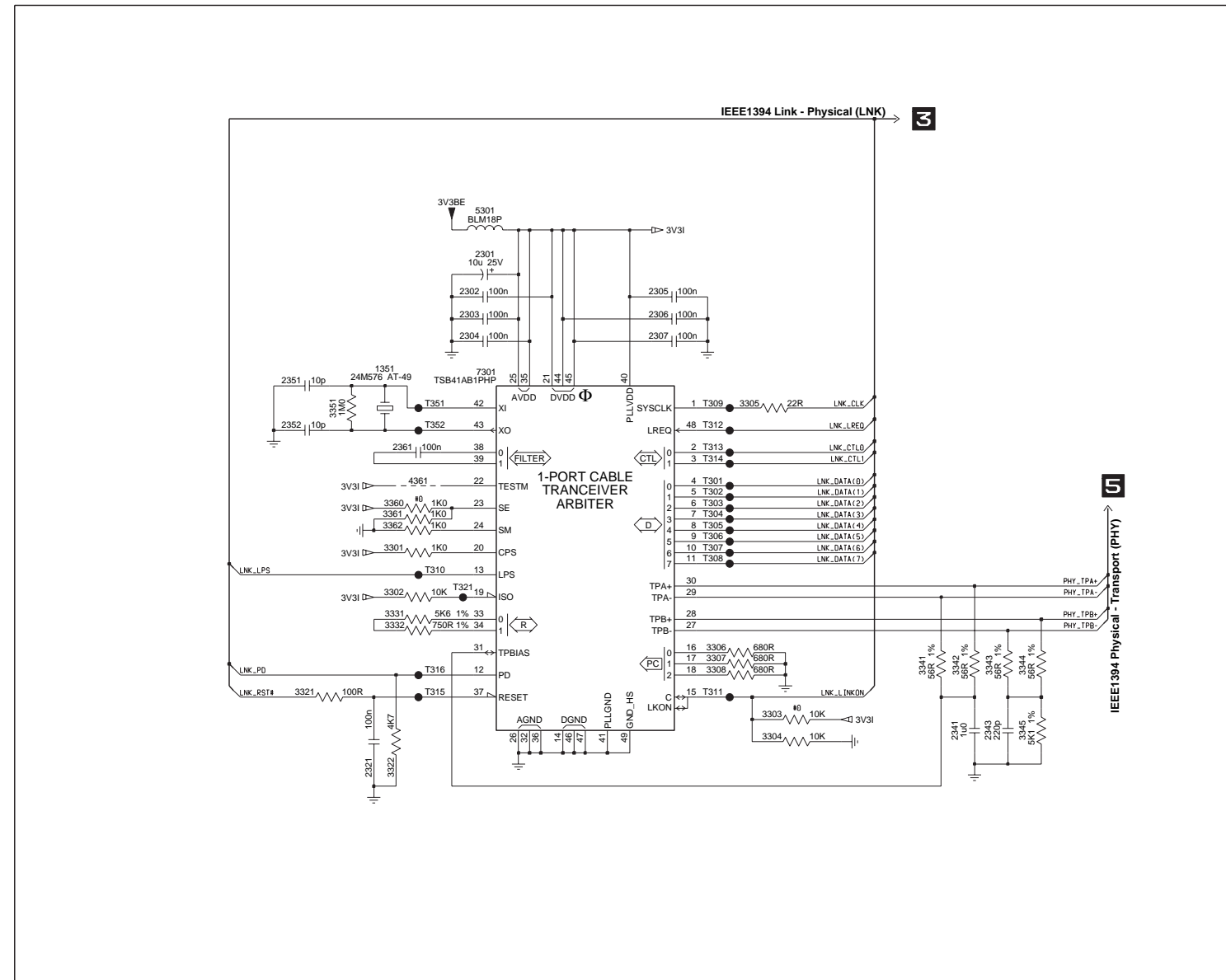
1 Back-end Processor



1101 B6	3169 F9
1105 E5	3171-1 G10
1111 D6	3171-2 G10
2101 B6	3171-3 G10
2102 B6	3171-4 G10
2105 E8	3172-1 G10
2106 E5	3172-2 G10
2108 G12	3172-3 G10
2109 G13	3172-4 G10
2121 G3	3173-1 G10
2122 G4	3173-2 G10
2123 G4	3173-3 G10
2124 G4	3173-4 G10
2125 G4	3174-1 G10
2126 G4	3174-2 H10
2127 G4	3174-3 H10
2128 G4	3174-4 H10
2129 G5	3175-1 H10
2130 G5	3175-2 H10
2131 G5	3175-3 H10
2135 I5	3175-4 H10
2141 F5	3176-1 H10
2142 F5	3176-2 H10
2143 F5	3176-3 H10
2144 F6	3176-4 H10
2145 F6	3177-1 H10
2146 F6	3177-2 H10
2147 F6	3177-3 H10
2148 F6	3177-4 H10
2149 F6	3178-1 H10
2151 G1	3178-2 H10
2152 G1	3178-3 H10
2153 G1	3178-4 H10
2154 G1	3181-1 G13
2155 G2	3181-2 H13
2156 G2	3181-3 H13
2157 G2	3181-4 H13
2158 G2	3182-1 H13
2159 G2	3182-2 H13
2160 G2	3182-3 H13
2161 G2	3182-4 H13
2162 G3	3183-1 H10
2165 I6	3183-2 G13
2166 G6	3183-3 H13
2167 G6	3183-4 G13
2171 H5	3184-1 G13
2172 H6	3184-2 G13
2173 H6	3184-3 G13
2174 H6	3184-4 G13
2175 H6	3185-1 H13
2181 I5	3185-2 H13
2182 I5	3185-3 H13
2183 I6	3185-4 H13
2191 I6	3186-1 H13
2192 I6	3186-2 H13
2199 D7	3186-3 H13
3101 A6	3186-4 H13
3102 A6	3187-1 H13
3103 A6	3187-2 H13
3104 A6	3187-3 H13
3105 A6	3187-4 H13
3106 E5	3188-1 H13
3107 E5	3188-2 H13
3108 E5	3188-3 H13
3109 E5	3188-4 H13
3110 F5	3191 H4
3111 E11	3192 D9
3112 E11	3193 E8
3113 E11	3194 D8
3114 E11	3195 E8
3115 E11	3196 D7
3116 A10	3197 D8
3117 A10	3198 D7
3118 A10	3199 D7
3119 C10	3199 D7
3121 B4	5135 H5
3122 C4	5141 F5
3123 C4	5151 G1
3124 A4	5155 G6
3125 C4	5166 H6
3131 B4	5171 G5
3132 B4	5181 I5
3133 B4	6101 B12
3134 B4	7101-1 B7
3135 C4	7101-2 G8
3136 D4	7101-3 A12
3137 B4	7101-4 D12
3138 B4	7101-5 A2
3139 B4	7101-6 D3
3141 E1	7101-7 A7
3142 F1	7101-8 I3
3143 E1	7105 E8
3144 F1	7111-1 D7
3145 E1	7111-2 D9
3146 F1	T101 A6
3147 E2	T102 A6
3148 E2	T104 A6
3150 F2	T105 B6
3151 E2	T106 A6
3152 F2	T111 D6
3153 E2	T112 D6
3154 F2	T113 D6
3155 E2	T121 B6
3156 F2	T122 B6
3158 C8	
3159 B8	
3160 C8	
3161 H2	
3162 A8	
3163 B8	
3164 B8	
3165 B8	
3166 B8	
3167 B8	
3168 F9	

Digital: IEEE 1394 Physical Layer

3 IEEE1394 Physical Layer



#0 Not used (provision)

1351 D5
 2301 D6
 2302 D6
 2303 D6
 2304 D6
 2305 D7
 2306 D7
 2307 D7
 2321 G5
 2341 G9
 2343 G9
 2351 D5
 2352 E5
 2361 E5
 3301 E5
 3302 F5
 3303 G8
 3304 G8
 3305 E8
 3306 F7
 3307 F7
 3308 F7
 3321 F5
 3322 G5
 3331 F5
 3332 F5
 3341 F9
 3342 F9
 3343 F9
 3344 F9
 3345 G9
 3351 E5
 3360 E5
 3361 E5
 3362 E5
 4361 E5
 5301 C6
 7301 D6
 T301 E7
 T302 E7
 T303 E7
 T304 E7
 T305 E7
 T306 E7
 T307 E7
 T308 F7
 T309 E7
 T310 F6
 T311 F7
 T312 E7
 T313 E7
 T314 E7
 T315 F6
 T316 F6
 T321 F6
 T351 E6
 T352 E6

Digital: Video Input Processor

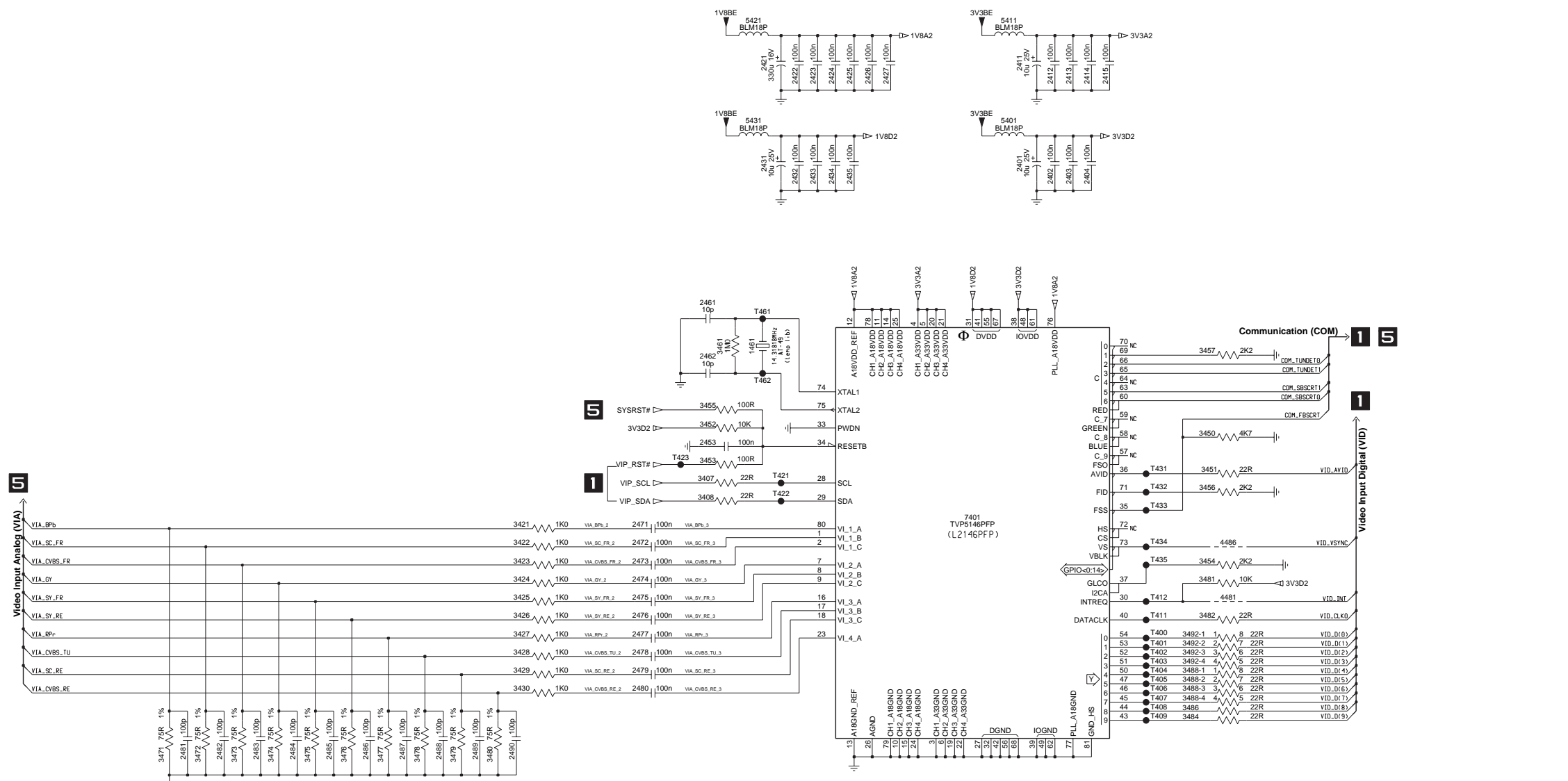
4 Video Input Processor

1 2 3 4 5 6 7 8 9 10 11 12 13

A
B
C
D
E
F
G
H
I

T435 F10
T461 D7
T462 E7

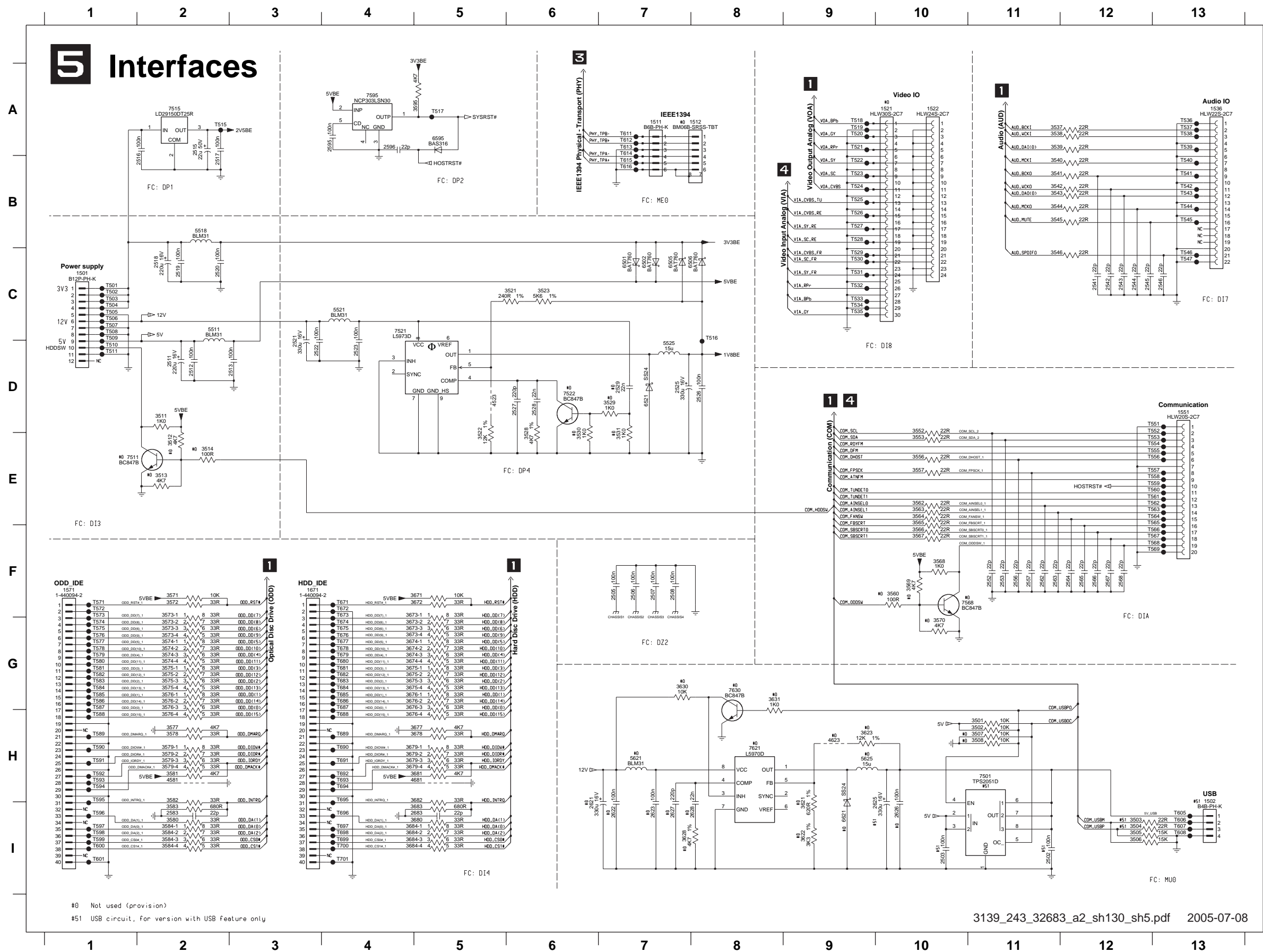
1461 D7
2401 C9
2402 C9
2403 C9
2404 C9
2411 B9
2412 B9
2413 B9
2414 B9
2415 B10
2421 B7
2422 B7
2423 B7
2424 B7
2425 B8
2426 B8
2427 B8
2431 C7
2432 C7
2433 C7
2434 C7
2435 C8
2453 E6
2461 D6
2462 D6
2471 F6
2472 F6
2473 F6
2474 F6
2475 F6
2476 F6
2477 G6
2478 G6
2479 G6
2480 G6
2481 G2
2482 G3
2483 G3
2484 G3
2485 G4
2486 G4
2487 G4
2488 G4
2489 G5
2490 G5
3407 E6
3408 E6
3421 F5
3422 F5
3423 F5
3424 F5
3425 F5
3426 F5
3427 G5
3428 G5
3429 G5
3430 G5
3450 E10
3451 E10
3452 E6
3453 E6
3454 F10
3455 E6
3456 E10
3457 D10
3461 D7
3471 G2
3472 G2
3473 G3
3474 G3
3475 G3
3476 G4
3477 G4
3478 G4
3479 G4
3480 G5
3481 F10
3482 F10
3484 G10
3486 G10
3488-1 G10
3488-2 G10
3488-3 G10
3488-4 G10
3492-1 G10
3492-2 G10
3492-3 G10
3492-4 G10
4481 F11
4486 F11
5401 C9
5411 B9
5421 B7
5431 C7
7401 F9
T400 G10
T401 G10
T402 G10
T403 G10
T404 G10
T405 G10
T406 G10
T407 G10
T408 G10
T409 G10
T411 F10
T412 F10
T421 E7
T422 E7
T423 E6
T431 E10
T432 E10
T433 F10
T434 F10



#0 Not used (provision)

Digital: Interfaces

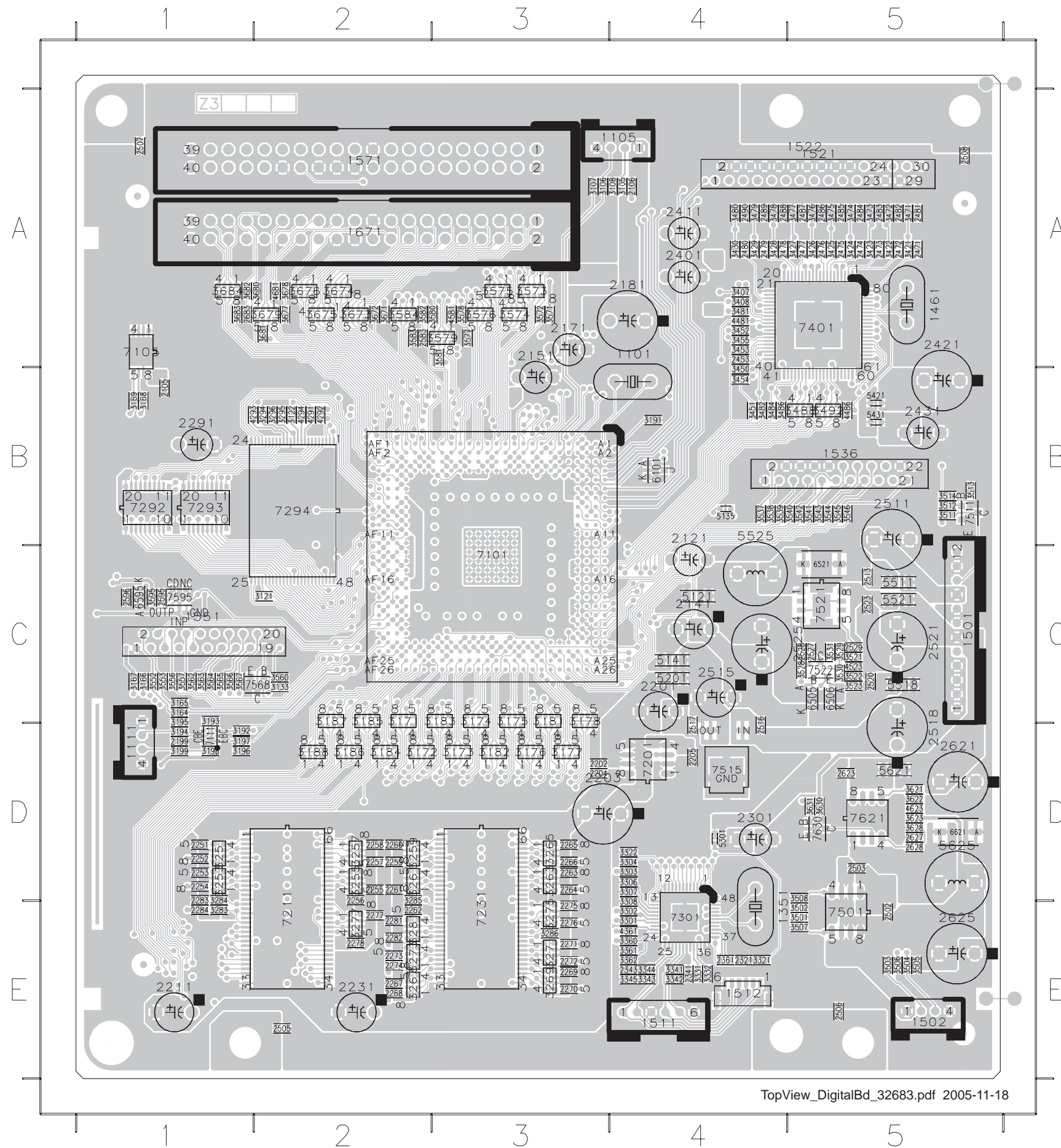
5 Interfaces



1501 C1	3575-4 G2	T537 A13
1502 I13	3576-1 G2	T538 A13
1511 A7	3576-2 G2	T539 A13
1512 A8	3576-3 G2	T540 B13
1521 A10	3576-4 H2	T541 B13
1522 A10	3577 H2	T542 B13
1536 A13	3578 H2	T543 B13
1551 D13	3579-1 H2	T544 B13
1571 F1	3579-2 H2	T545 B13
1671 F3	3579-3 H2	T546 C13
2502 I11	3579-4 H2	T547 C13
2503 I10	3580 I2	T551 D13
2505 F7	3581 H2	T552 D13
2506 F7	3582 H2	T553 E13
2507 F7	3583 I2	T554 E13
2508 F7	3584-1 I2	T555 E13
2511 D2	3584-2 I2	T556 E13
2512 D2	3584-3 I2	T557 E13
2513 D3	3584-4 I2	T558 E13
2515 A2	3595 A5	T559 E13
2516 B2	3621 I9	T560 E13
2517 B2	3622 I9	T561 E13
2518 C2	3623 H9	T562 E13
2519 C2	3628 I7	T563 E13
2520 C2	3630 C7	T564 E13
2521 D3	3631 G8	T565 E13
2522 D3	3671 F5	T566 F13
2523 D4	3672 F5	T567 F13
2525 D7	3673-1 F5	T568 F13
2526 D8	3673-2 G5	T569 F13
2527 D6	3673-3 G5	T571 F1
2528 D6	3673-4 G5	T572 F1
2529 D7	3674-1 G5	T573 F1
2541 C12	3674-2 G5	T574 G1
2542 C12	3674-3 G5	T575 G1
2543 C12	3674-4 G5	T576 G1
2544 C12	3675-1 G5	T577 G1
2545 C12	3675-2 G5	T578 G1
2546 C13	3675-3 G5	T579 G1
2552 F11	3675-4 G5	T580 G1
2553 F11	3676-1 G5	T581 G1
2554 F11	3676-2 G5	T582 G1
2557 F11	3676-3 G5	T583 G1
2562 F11	3676-4 H5	T584 G1
2563 F11	3677 H5	T585 G1
2564 F12	3678 H5	T586 G1
2565 F12	3679-1 H5	T587 G1
2566 F12	3679-2 H5	T588 H1
2567 F12	3679-3 H5	T589 H1
2568 F12	3679-4 H5	T590 H1
2583 I2	3680 I5	T591 H1
2595 A4	3681 H5	T592 H1
2596 A4	3682 H5	T593 H1
2621 I6	3683 I5	T594 H1
2622 I7	3684-1 I5	T595 H1
2623 I7	3684-2 I5	T596 H1
2625 I10	3684-3 I5	T597 H1
2626 I10	3684-4 I5	T598 H1
2627 I7	4523 D5	T599 I1
2628 I8	4581 H2	T600 I1
2683 I5	4623 H9	T601 I1
3501 H11	4628 H5	T605 I13
3502 H11	5511 C2	T606 I13
3503 I12	5518 B2	T607 I13
3504 I12	5521 C4	T608 I13
3505 I12	5525 D7	T611 A7
3506 I12	5612 H7	T612 A7
3507 H11	5625 H9	T613 A7
3508 H11	6501 C7	T614 A7
3511 D2	6502 C7	T615 B7
3512 E2	6505 C7	T616 B7
3513 E2	6506 C8	T617 F4
3514 E2	6521 D7	T617 F4
3521 E5	6521 C6	T618 A7
3522 E5	6621 I9	T619 G4
3523 C6	7501 H11	T675 G4
3528 E6	7511 E2	T676 G4
3529 D7	7515 A2	T677 G4
3530 E6	7521 C4	T678 G4
3531 E7	7522 D6	T679 G4
3537 A11	7568 F10	T680 G4
3538 A11	7595 A4	T681 G4
3539 A11	7621 H8	T682 G4
3540 B11	7630 G8	T683 G4
3542 B11	7601 C1	T684 G4
3543 B11	7503 C1	T685 G4
3544 B11	7504 C1	T687 G4
3545 B11	7505 C1	T688 H4
3546 C11	7506 C1	T689 H4
3552 D10	7507 C1	T690 H4
3553 E10	7508 C1	T691 H4
3556 E10	7509 C1	T692 H4
3557 E10	7510 D1	T693 H4
3560 F10	7511 D1	T694 H4
3562 E10	7515 A2	T695 H4
3563 E10	7516 C8	T696 H4
3564 E10	7517 A5	T697 H4
3565 E10	7518 A9	T698 H4
3566 F10	7519 A9	T699 H4
3568 F10	7520 A9	T700 H4
3569 F10	7521 A9	T701 H4
3570 G10	7522 B9	
3571 F2	7523 B9	
3572 F2	7524 B9	
3573-1 F2	7525 B9	
3573-2 G2	7526 B9	
3573-3 G2	7527 B9	
3573-4 G2	7528 B9	
3574-1 G2	7529 C9	
3574-2 G2	7530 C9	
3574-3 G2	7531 C9	
3574-4 G2	7532 C9	
3575-1 G2	7533 C9	
3575-2 G2	7534 C9	
3575-3 G2	7535 C9	
3575-4 G2	7536 A13	

#0 Not used (provision)
 #51 USB circuit, for version with USB feature only

Layout: Digital-Main Part (Top View)



TopView_DigitalBd_32683.pdf 2005-11-18

1101	A4
1105	A4
1351	F4
1461	A5
1501	F5
1502	A4
1511	A4
1512	A5
1521	A5
1522	A5
1523	A5
1524	A5
1525	A5
1526	A5
1527	A5
1528	A5
1529	A5
1530	A5
1531	A5
1532	A5
1533	A5
1534	A5
1535	A5
1536	A5
1537	A5
1538	A5
1539	A5
1540	A5
1541	A5
1542	A5
1543	A5
1544	A5
1545	A5
1546	A5
1547	A5
1548	A5
1549	A5
1550	A5
1551	A5
1552	A5
1553	A5
1554	A5
1555	A5
1556	A5
1557	A5
1558	A5
1559	A5
1560	A5
1561	A5
1562	A5
1563	A5
1564	A5
1565	A5
1566	A5
1567	A5
1568	A5
1569	A5
1570	A5
1571	A5
1572	A5
1573	A5
1574	A5
1575	A5
1576	A5
1577	A5
1578	A5
1579	A5
1580	A5
1581	A5
1582	A5
1583	A5
1584	A5
1585	A5
1586	A5
1587	A5
1588	A5
1589	A5
1590	A5
1591	A5
1592	A5
1593	A5
1594	A5
1595	A5
1596	A5
1597	A5
1598	A5
1599	A5
1600	A5

8. Circuit- and IC description

8.1. PSU Board

8.1.1. General

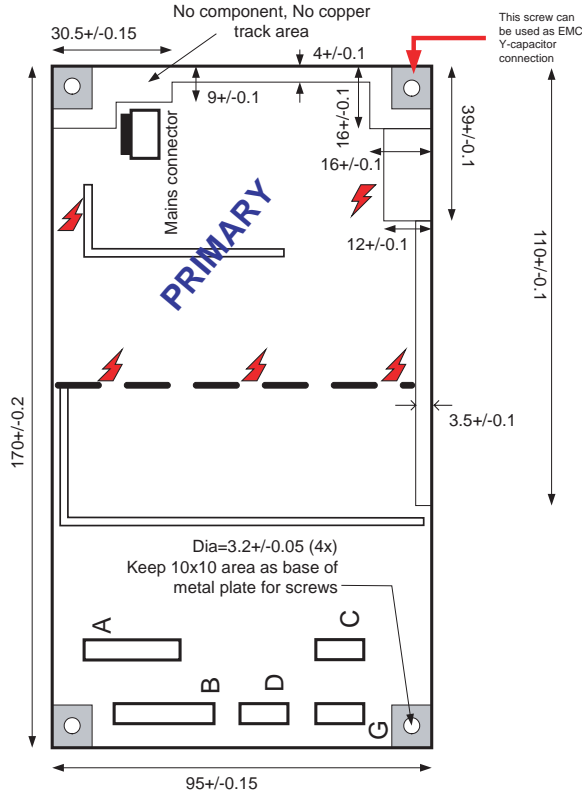


Figure 8-1 PSU Board Layout

The PSU board provides the following connection to the rest of the set:

- Connector A: Supply/Signal to Analog Board

Pin no.	Supply / Signal	Remarks
1	12VSTBY	
2	STBY control	>2.5V = supply for conn. B is off (Standby mode) <0.5V = supply for conn. B is on (On mode)
3	5VSTBY	
4	DD_ON	>2.5V = supply for conn. D is on <0.5V = supply for conn. D is off
5	3V3STBY	
6	IPFAIL	>4.0V = power is good <0.5V = power fail
7	5NSTBY	
8	GND	
9	33VSTBY	
10	GND	
11	VGNSTBY	

- Connector B: Supply to Digital Board

Pin no.	Supply / Signal	Remarks
1	3V3D	
2	3V3D	
3	3V3D	
4	3V3D	
5	GND	
6	12VD	
7	GND	
8	GND	
9	5VD	
10	HD_ON	>2.5V = supply for conn. C & G is on <0.5V = supply for conn. C & G is off
11	GND	
12	5ND	

- Connector C: not in use

- Connector D: Supply to Basic Engine

Pin no.	Supply
1	12VE
2	GND
3	GND
4	5VE

- Connector E: Supply to HDD

Pin no.	Supply
1	12VH
2	GND
3	GND
4	5VH

⚠ The Mains must be disconnected from the Set before attempting the procedure mentioned below:

The PSU is designed with short-circuit protection that will shutdown the power supply. When this happen, the voltage stored in capacitor C1 and C2 will prevent the Power Supply to turn-on, therefore they must be discharged with a screwdriver with high electrical isolation handle before the PSU can function normally again.

Note: During the process of discharging the capacitors ,spark can be observed which is typical of the high voltage stored in Capacitor C1 and C2.

8.2. Front Board (Panel – Display + Key)

8.2.1. General

This board consists of the following parts:

- Slave μ P
- Frontend (Audio & Video)
- VFD Heater voltage Generator

8.2.2. Slave μ P (IC 7105: UPD16316GB)

The core element of the Front Display + Keyboard is the slave μ P. It runs on a 5V supply and is responsible for the following functions:

- Interface with the Domino chip on the Digital Board
- Evaluation of the keyboard matrix within Front board
- Decoding the remote control commands from the infra-red receiver
- Activation and control of the display
- Timer Wake-up activation

It runs on two clock frequencies namely:

- 5MHz for normal operation
- 32.768KHz for the real time clock

8.2.3. Interface to the Domino chip

It communicates with the Domino Host on the Digital board via a 6-wire synchronous serial interface. The Host is always the master to generate the communication clock to the slave μ P irrespective of the direction of data transfer.

8.2.4. Evaluation of the keyboard matrix

A key matrix is used on the Front board. The slave μ P does the key scanning with FIP9 - FIP24 (pin 23-26 and 29-40) as output and KEY_A - KEY_C (pin 41-43) as input. Each key is assigned a key code based on the output and input ports, and the slave μ P will do the evaluation by getting the key code.

8.2.5. IR receiver and signal evaluation

The IR receiver on the Front Board contains a selectively controlled amplifier as well as a photodiode. The photodiode changes the received infrared transmission to electrical pulses, which are then amplified and demodulated. On the output of the IR receiver, a pulse sequence with TTL-level, which corresponds to the envelope curve of the received IF remote control command can be measured. This pulse sequence is fed into the slave μ P for further processing via pin 13.

8.2.6. Vacuum Fluorescent Display [1203: HUV-08SS65T]

The VFD is fully controlled and driven by the slave μ P.

8.2.7. VFD Heater Voltage Generator

The oscillator circuit provided by [5100, 2101, 2102 & 7100] provides the necessary sine wave signal transistors [7101, 7102 & 7103] to generate the 50% duty-cycle 48KHz AC square-wave signal for the filament of the VFD.

8.2.8. Timer Wake-up activation

During the Standby mode, the slave μ P provides a wakeup service (POWER_CTL-line switches to high), then the Domino Host (on the Digital Board) starts up and asks for the wake-up reason.

8.3. Analog Board

8.3.1. General

The PCBA consist of the following parts:

- Fan Control
- Tuner Frontend
- Audio ADC/DAC

8.3.2. Fan Control

The Laser on the OPU of the drive is very sensitive to temperature. Therefore, a fan control circuit [7802 & 7803] is built into the board. The fan is ON when the set is in ACTIVE Mode, and OFF when the tray opens. When the set is in Standby mode, the fan is switched off. The control of the fan comes from the Digital Board

8.3.3. Tuner Frontend [1100 : TMQZ2]

The Analog board supports 2 possible Tuner Frontend unit namely:

- 1101 – PAL BG,DK and I Broadcast System
- 1100 – NTSC-M Broadcast System

It has a RF IN for antenna connection and RF OUT which provides a RF loop through for connection to the TV. The Frontend (Tuner & IF-demodulator) is controlled by I2C (SCL_5V- and SDA_5V-) lines coming from the Domino Host on the Digital board.

Complete video processing is done in this unit and the video output (CVBS) is taken out from the [VID_OUT] pin via a transistor as CVBS_TV-line to the Video I/O circuitry. The audio-IF component SIF1 is taken out from the [SIFOUT] pin for the demodulation by the Multi-sound processor (MSP).

Audio demodulator

The sound demodulation is done by the MSP3425 [7500], which is also fully controlled via I2C bus by the Domino Host. The audio signals are available at pin 30 and pin 31 and fed as AFER- & AFEL- line to the audio I/O for further processing.

8.3.4. Audio routing

Audio IO

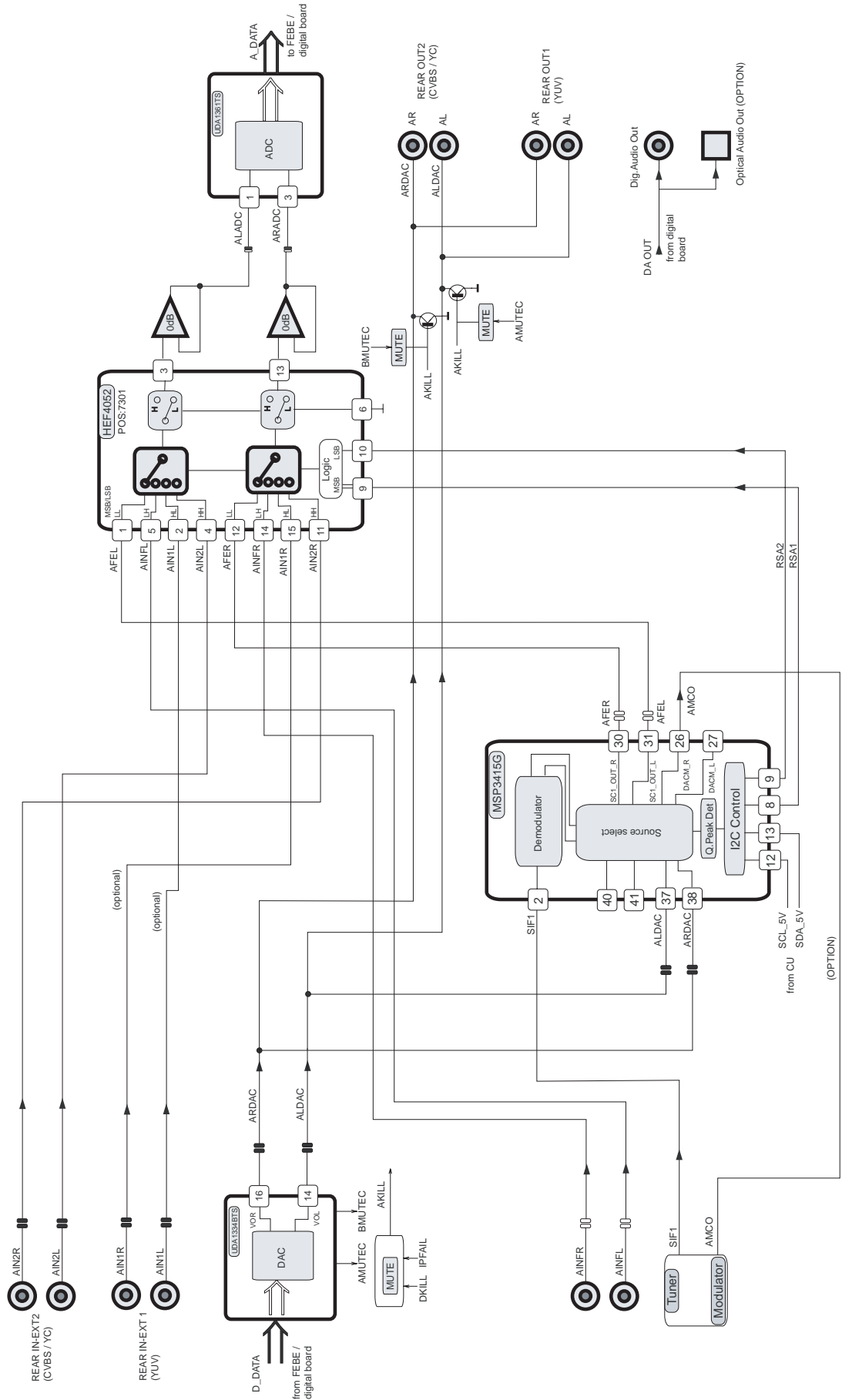


Figure 8-2 Analog Audio IO

The sound processing is always done in stereo (that means separate left- and right- channel) and the complete switching is realized by using HEF4052, which is a dual four-to-one multiplexer and MSP3415G, multi-sound processor.

a) Record path

The complete selection of audio signal for recording is done by a HEF4052 [7301], which is a dual four-to-one multiplexer. The input lines for the selector [7301] are coming either from MSP [7500] (AFEL/AFER) or cinch rear-in Ext AIN2L/AIN2R) or the cinch front-in (AINFL/AINFR). The [7301] controlled via RSA1- and RSA2- signals coming from the MSP [7500]. The MSP acts as a port expander of the slave μ P. The Op-Amp on the output [7301] is necessary for performance reasons and acts also as a driver. The selected signals ALADC and ARADC are directly fed to the Audio-ADC. As there is also a fifth input (DV-in), the corresponding audio signals (ALDAC/ARDAC) from the Digital board are routed via the MSP [7500] and output as AFEL/AFER to selector [7301]

b) Cinch out

The Multiplexer (HEF4052) selects signals from a few sources, namely Rear Cinch In (AIN2L/AIN2R), Front Cinch In (AINFL/AINFR) and MSP (AFEL/AFER). The multiplexer is controlled via RSA1 and RSA2 signals coming from the MSP.

c) Digital audio-out path

In addition to the analog output the set is also equipped with a digital audio output via cinch plug [1701]. The signal is generated on the digital board and routed via the audio interface cable and connector [1600] to the Analog board. Here the DAOUT-line first passes a 6-fold inverter [7700] being used as a driver and for performance reasons (noise reduction, jitter, etc). Afterwards a transformer [5700] is necessary to achieve the correct level and also to have a floating output with isolated group before the signal is fed via [3712 & 3713] to cinch plug [1701]. The capacitor [2706] performs an AC-coupling between connector- and set-ground.

8.3.5. Audio ADC/DAC

The conversion of analog audio signals (ALADC/ARADC) from the record-selector [7301] is done via UDA1361TS [7606]. This IC can process input signals up to 2V_{rms} by using external resistors in series to the input pins. All required clock signals are generated on the digital board and only the audio data (A_DAT-line) are routed from the Analog to Digital board for further processing.

The transformation of digital audio back into analog domain is done by CS4351 [7603]. All necessary clock signals are coming from the digital board and digital audio data (D_DATA0-line) are converted into analog signals (pin 15 and 18). The output signals from the audio DAC part (ALDAC/ARDAC) are directly routed to the rear cinch sockets. To avoid plops and any other audible noise on the output there is a mute-stage implemented for each channel. The activation of the mute function is done via the AMUTE & BMUTE (digital silence mute) from the audio DAC and also the AKILL line which is a combination of the D_KILL from the Digital board and POWER_FAIL from power supply.

8.3.6. Video routing

Video IO

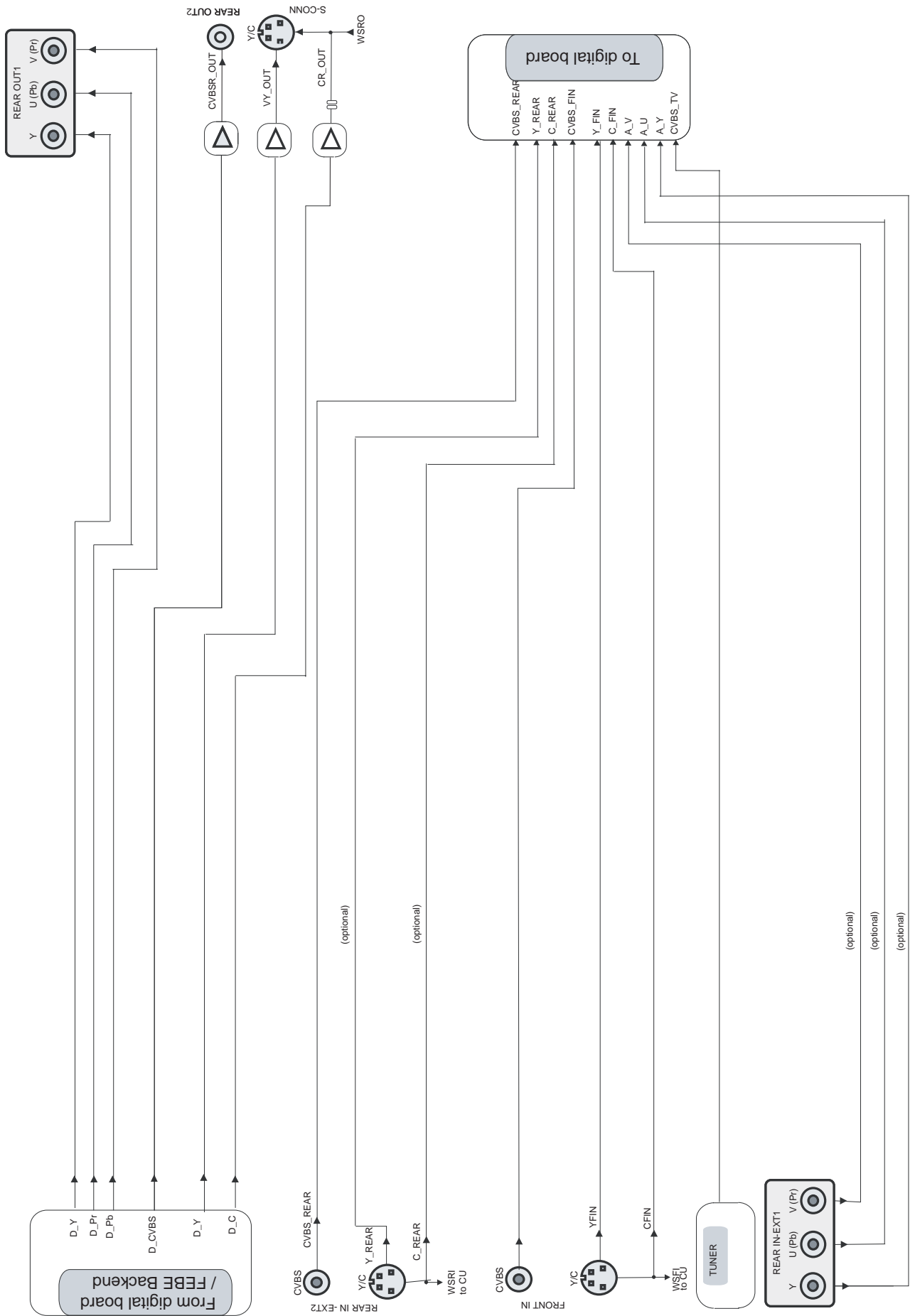


Figure 8-3 Analog Video IO

The switching of the various video input signals is done by the Video Input Processor on the Digital Board. These signals are directly routed to the digital board through connector 1205 on the Analog Board

8.4. Digital Board

The Digital Board is based on the highly integrated LSI 'Domino' BGA chip (Ball Grid Array), DMN-8652. This IC has 2 on-chip ATAPI controller and integrates an analog

video encoder, and provides build-in support for non-simultaneous progressive and interlaced video output. A 1394 link layer function is also integrated, requiring only a simple external physical layer device. The DMN-8652 has a set of integrated USB Physical Layer Interface. The board encodes and multiplexes analogue video and digital uncompressed audio (I2S) into an MPEG2 stream. This MPEG2 stream is formatted for recording by the DVD+RW engine. In the playback, the board will decode the MPEG2 video into analogue video. In addition, a DV stream can be received via IEEE 1394 (i-Link), and transformed to MPEG2 format.

8.4.1. Record Mode

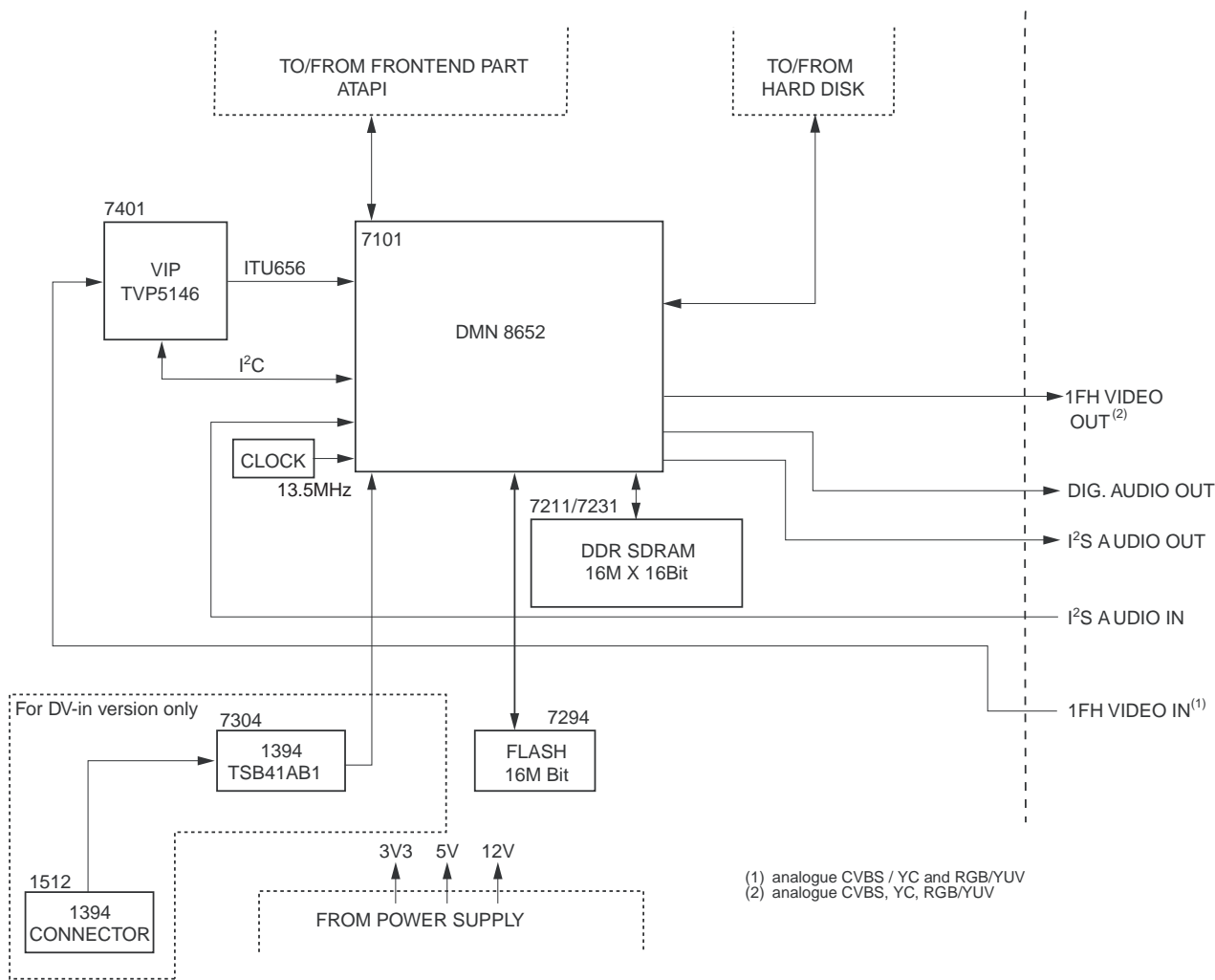


Figure 8-4 Domino block

Video Part

The analogue video input signals CVBS (Rear, Front, Tuner) and YC (Front) are routed via the board to connector 1521 and sent to the Video Input Processor, TVP5146P [7401]. The digital video input signals from the DV-in on the Front board are routed from connector 1521 via the IEEE 1394 PHY IC [7301] to the Domino chip [7101].

The Video Input Processor encodes the analogue video to digital video stream (CCIR656 format). The output stream, named VID_D (9:0), is then routed to the Domino chip. This IC encodes and decodes the digital video stream into / from MPEG2 format.

Audio Part

I²S audio is sent from the Analog board to the Domino chip via connector 1536.

The Domino chip compresses the I²S audio data into an MPEG1-L2 / AC3 audio stream.

Front-end I²S

The Domino chip interfaces directly to the basic Engine via ATAPI connector 1571. It buffers the data streams that are coming from (or going to) the Basic Engine.

In the Domino chip, the video MPEG2 stream and the audio AC3 stream are sent to the basic Engine for recording through ATAPI bus.

8.4.2. Playback mode

During playback, the data from the Basic Engine is going directly to the Domino chip via ATAPI interface. The Domino chip has the following outputs:

- Analogue video CVBS, YC and RGB outputs on connector 1521
- I²S audio (PCM format) on connector 1536
- SPDIF audio (digital audio output) on connector 1536
- Progressive Scan output connector 1522 (Not for European version)

8.4.3. Basic Engine Interface

The Digital board is equipped with an IDE bus (ATAPI) for connecting to the Basic Engine.

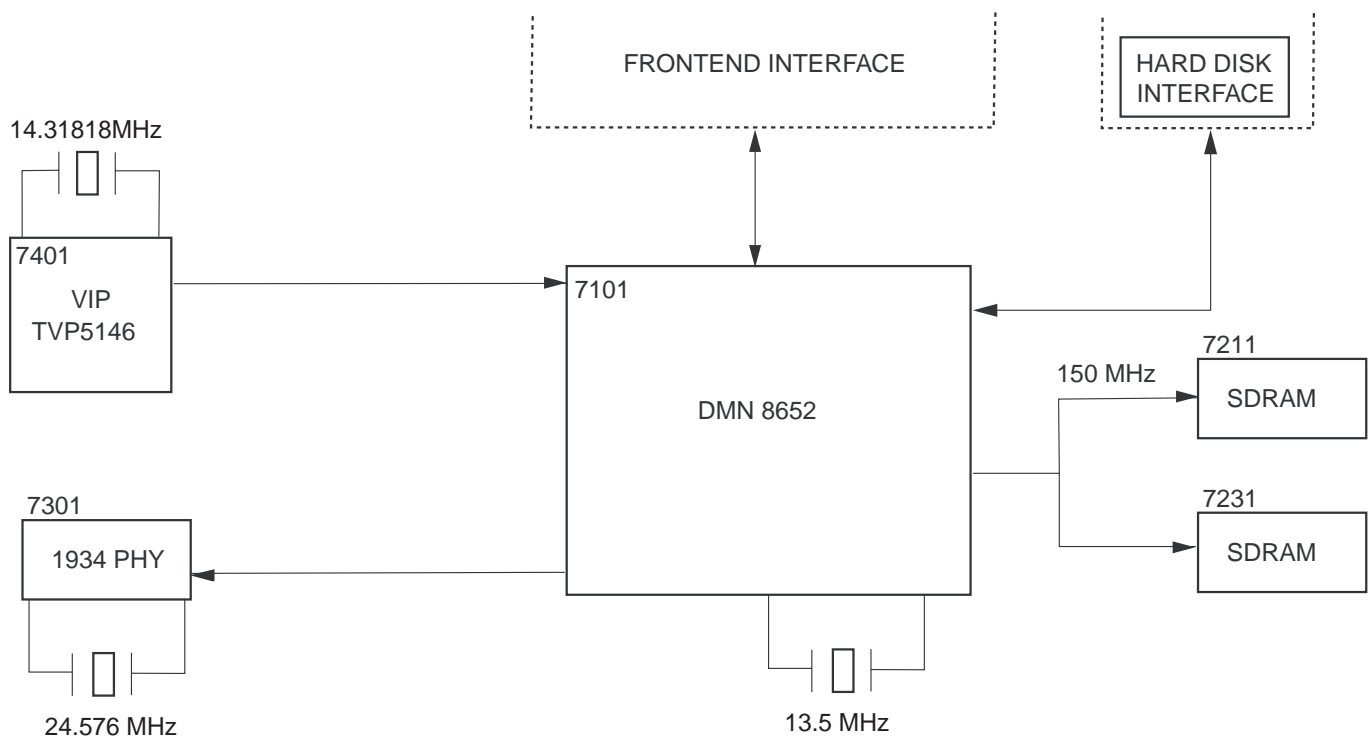
8.4.4. Clock Distribution

Figure 8-5 DIMINO_CLOCK

The Domino chip has a complex system, which is needed to support the processes running at different frequencies such as video decoding, audio decoding or peripheral I/O devices etc. To ensure a synchronous initialization of all the registers and state machines, all the PLLs are switched to their default frequency 27MHz.

Then when the booting control unit is correctly initialized and once it has captured all the booting parameters, it sets the PLLs to its functional frequencies. Thanks to a clock blocking mechanism, the frequency switching is glitch free.

System clocks:

- DMN-8652 (7101, pin A1 and A2) : 13.5 MHz provided by the x'tal 1101
- DMN-8652 1394-LINK (7101, pin K1) : 49.152MHz provided by 1394-PHY
- TVP5146 (7401, pin 74 and 75) : 14.31818MHz provided by x'tal 1461
- SDRAM (7211 and 7231, pin 45 and 46) : 150MHz provided by the DMN-8652
- TSB41AB1PHP IEEE 1394 PHY IC (7301, pin 42 and 43) : 24.576MHz provided by x'tal 1351

8.4.5. Power Supply

The Digital board is not powered in standby mode. The control signal STBY on the analog board will enable the PSU and power the digital board.

- STBY = Low: the digital board is in powered down standby mode
- STBY = High: the power supply to the digital board is enabled.

The 3V3, +5V and +12V come from the PSU, while the following voltages are generated in the digital board:

- 1.8V core voltage is generated on the board by a 2A switching step down voltage regulator [7521]

- 2.5V supply for the SDRAM is generated by an ultra fast low dropout linear regulator [7515]
- 1.25V DDR termination supply is generated by regulator [7201]

8.4.6. Memory

- FLASH IC7294: this memory contains the boot parameters and application firmware

8.4.7. Reset

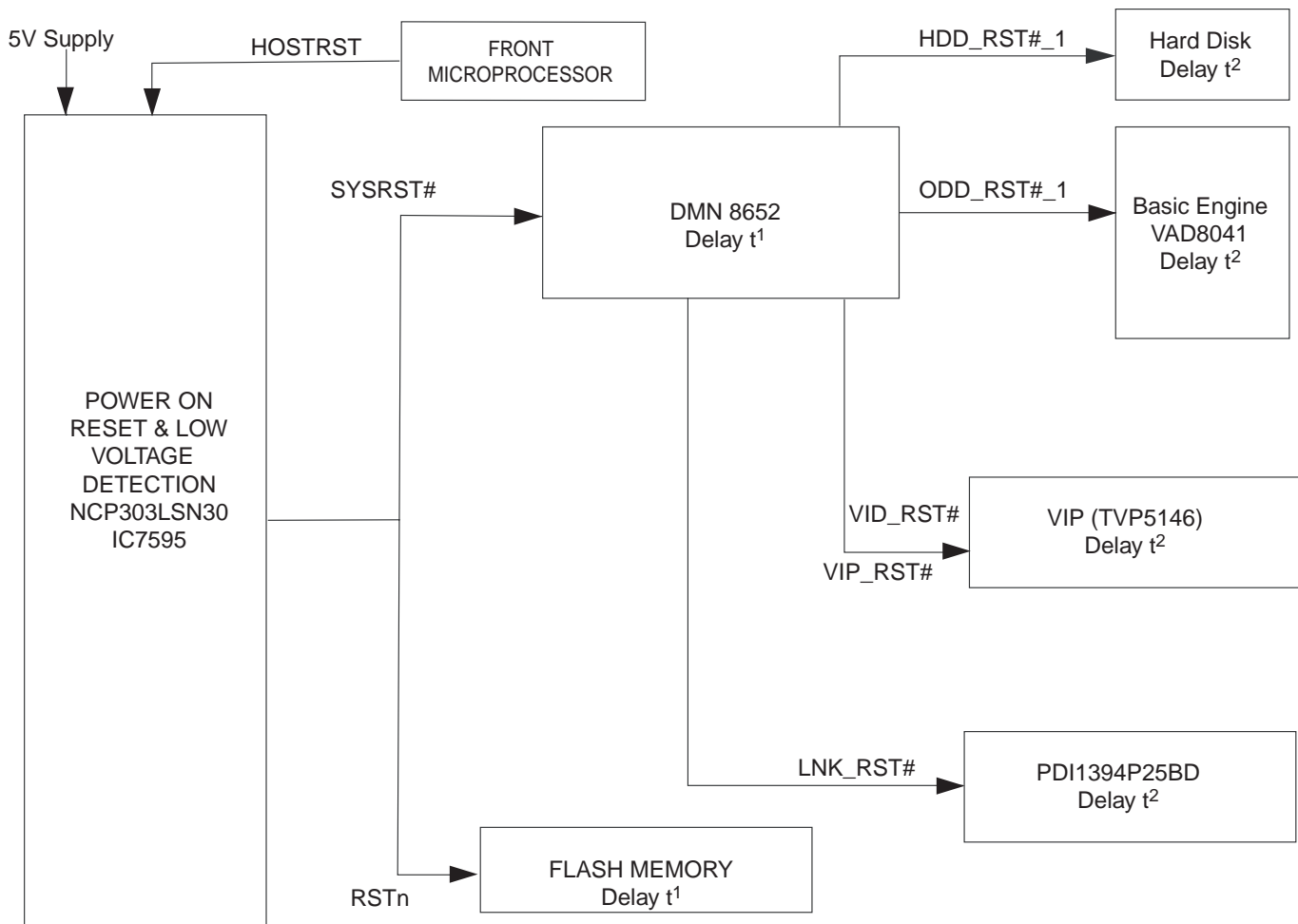


Figure 8-6 DOMINO_RESET

Reset concept Digital board

The reset circuitry [7595] takes care that the different devices on the digital board are boot-up in the correct order. At power on the reset circuitry provides the following resets (delay τ_1):

- SYS_RST# to the Domino chip [7101] and Flash Memory [7294]

The Domino chip then generates other reset signals (delay τ_2) via its GPIOs:

- VID_RST# to reset the VIP [7401]
- LINK_RST# to reset the IEEE1394 DV PHY IC [7301]
- ODD_RST#_1 to reset Basic Engine
- HDD_RST#_1 to reset the Hard Disk

8.4.8. I/O Connector

Audio IO Connector (item 1536)

The Audio In/Out (AIO) connector is used to interchange digital audio signals between the Analog and Digital board

Video IO Connector (item 1521)

The Video In/Out (VIO) Connector is used to interchange analogue video signals between the Analog and Digital board

8.5. Power Supply Unit

8.5.1. The following are the various supply lines provided:

- | | | | |
|-----------|---|--------|------------------|
| • 3V3STBY | to Analog Board | • 5ND | to Digital Board |
| • 5VSTBY | to Analog Board | • 12VD | to Digital Board |
| • 5NSTBY | to Analog Board | • 5VE | to Basic Engine |
| • 12VSTBY | to Analog Board & Front Board
(through Analog Board) | • 12VE | to Basic Engine |
| • 33VSTBY | to Analog Board | • 5VH | to Hard Disk |
| • VGNSTBY | to Front Board | • 12VH | to Hard Disk |
| • 3V3D | to Digital Board | | |
| • 5VD | to Digital Board | | |

Standby modes:
 In Standby mode, STBY control line is HIGH, switching off the 3V3D, 5VD, 5ND (provision), 5VE, 12VD, 12VH and 12VE supply reducing the power consumption.

8.6 IC Description

8.6.1 Analog Board

IC7421 - SMPS Control IC

BLOCK DIAGRAM

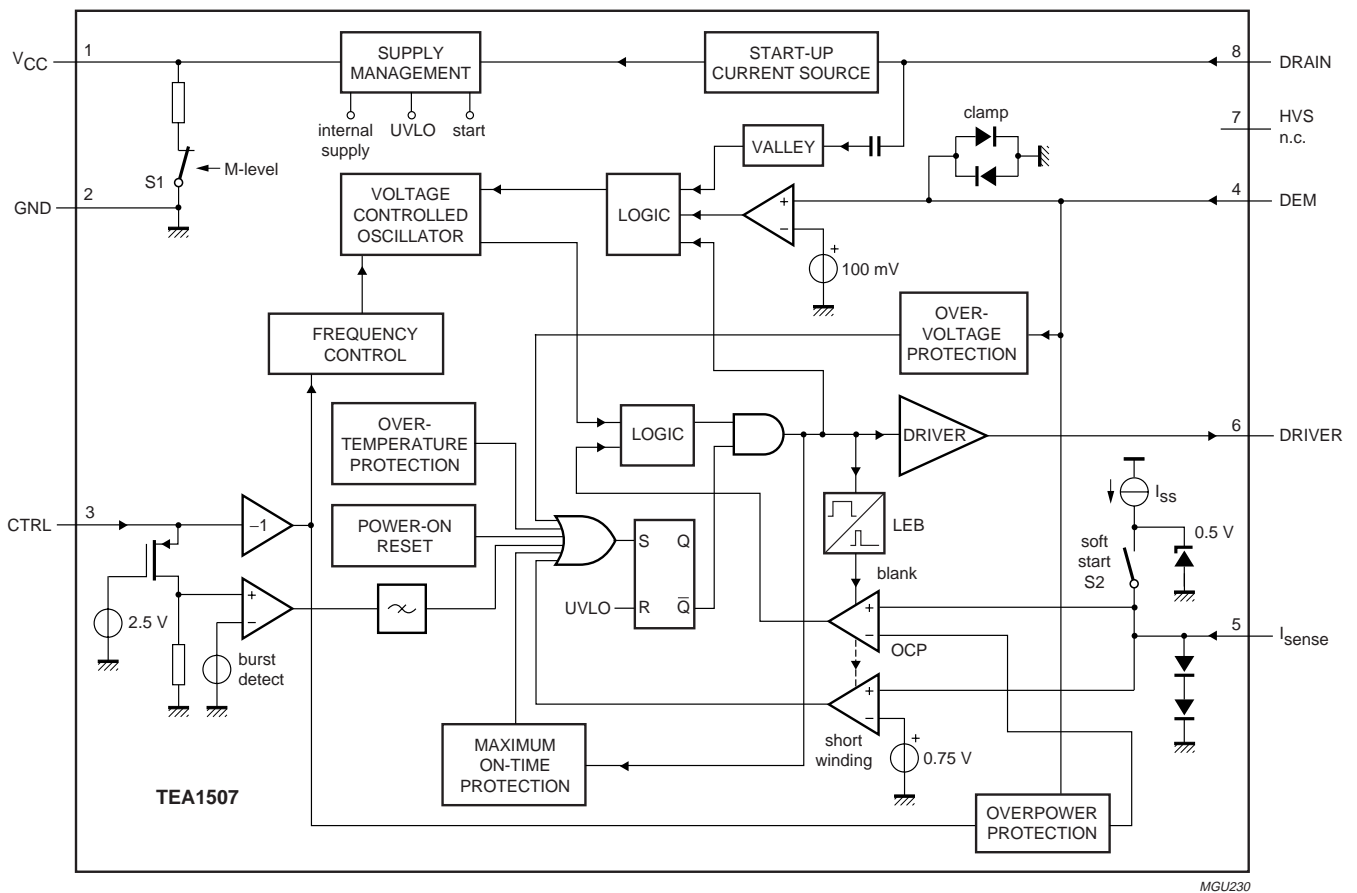


Figure 8-7

PIN DESCRIPTION AND CONFIGURATION

SYMBOL	PIN	DESCRIPTION
V _{CC}	1	supply voltage
GND	2	ground
CTRL	3	control input
DEM	4	input from auxiliary winding for demagnetization timing, OVP and OPP
I _{sense}	5	programmable current sense input
DRIVER	6	gate driver output
HVS	7	high voltage safety spacer, not connected
DRAIN	8	drain of external MOS switch, input for start-up current and valley sensing

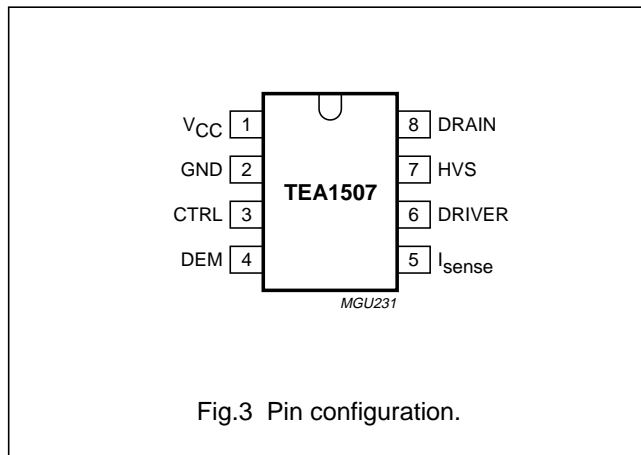


Fig.3 Pin configuration.

IC7500 - Multistand Sound Processor Family

BLOCK DIAGRAM

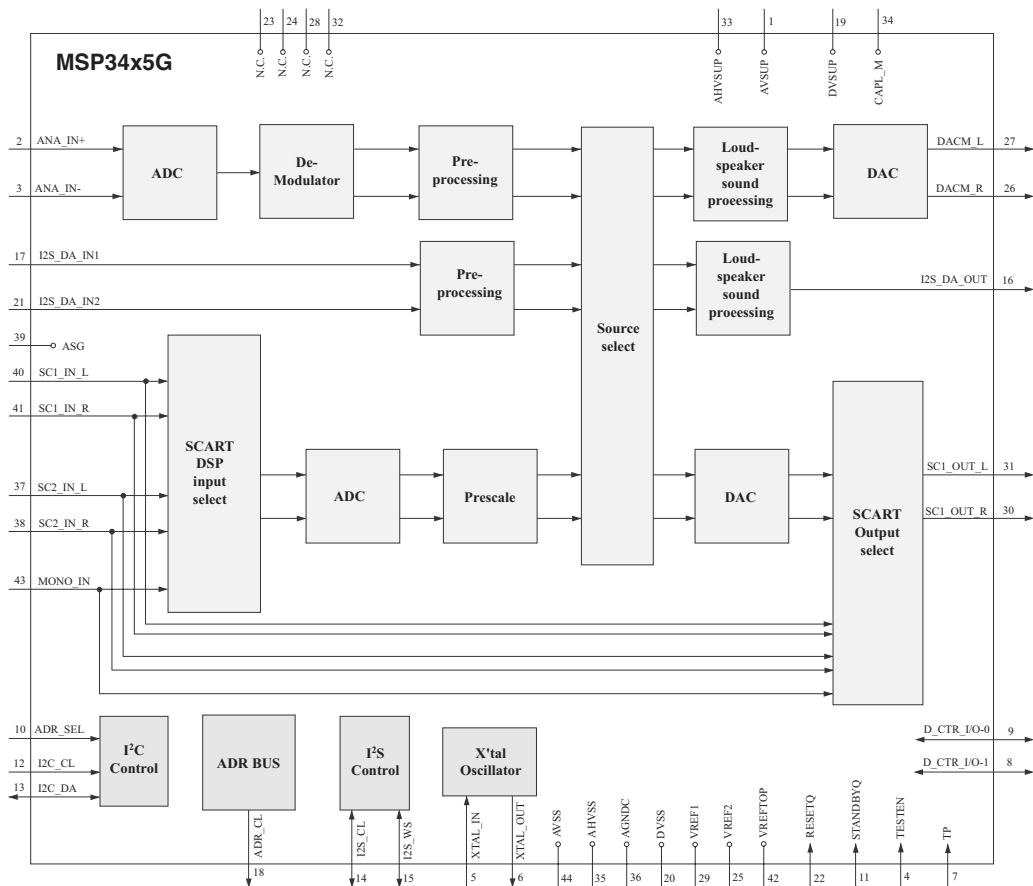
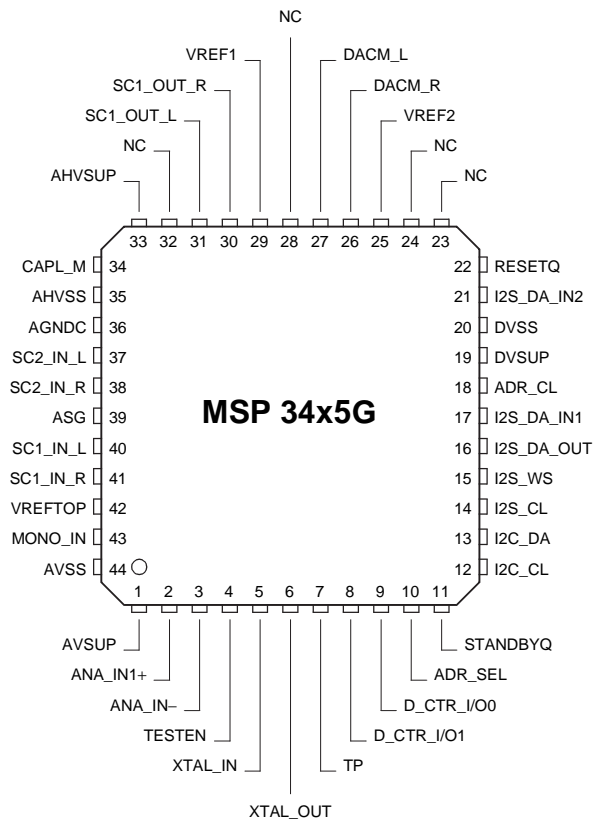


Figure 8-8

PIN CONFIGURATION



PMQFP44 package
Figure 8-9

IC7603 - 192KHz Stereo DAC with 2vrms line-out

BLOCK DIAGRAM

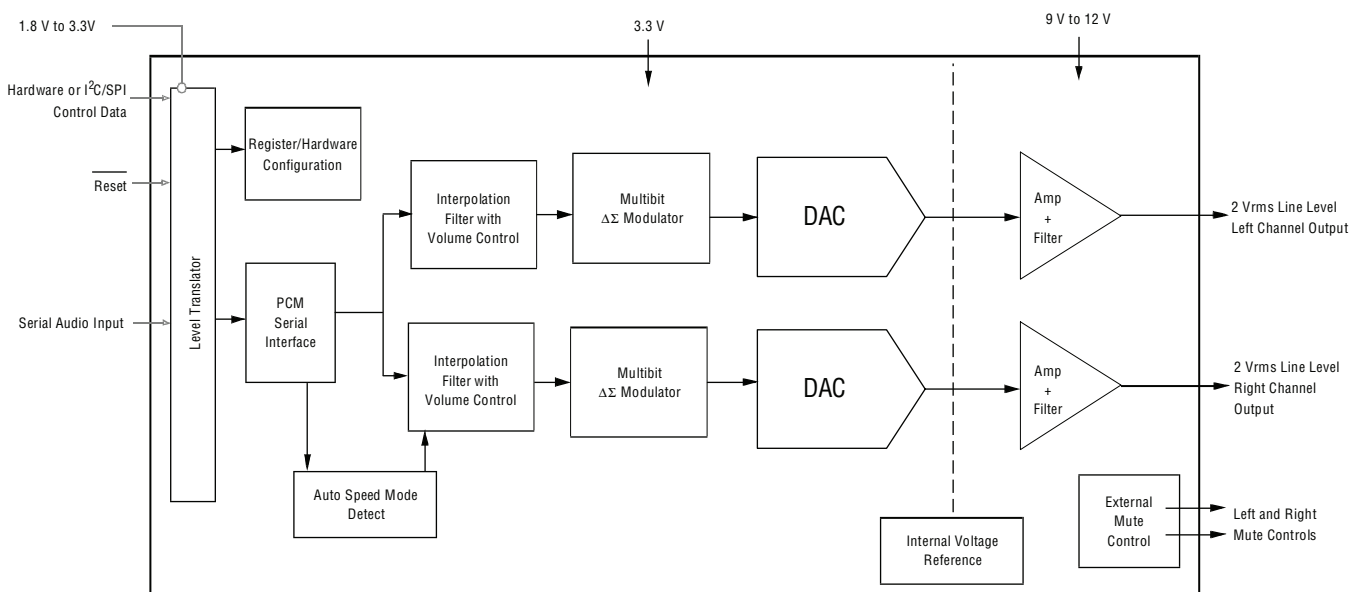
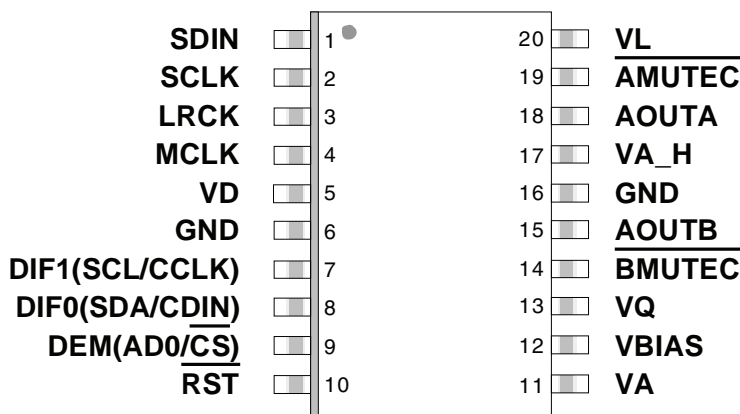


Figure 8-10

PIN DESCRIPTION AND CONFIGURATION



Pin Name	#	Pin Description
SDIN	1	Serial Audio Data Input (<i>Input</i>) - Input for two's complement serial audio data.
SCLK	2	Serial Clock (<i>Input</i>) - Serial clock for the serial audio interface.
LRCK	3	Left / Right Clock (<i>Input</i>) - Determines which channel, Left or Right, is currently active on the serial audio data line.
MCLK	4	Master Clock (<i>Input</i>) - Clock source for the delta-sigma modulator and digital filters.
VD	5	Digital Power (<i>Input</i>) - Positive power supply for the digital section.
GND	6	Ground (<i>Input</i>) - Ground reference.
	16	
RST	10	Reset (<i>Input</i>) - Powers down device and resets all internal registers to their default settings when enabled.
VA	11	Low Voltage Analog Power (<i>Input</i>) - Positive power supply for the analog section.
VBIAS	12	Positive Voltage Reference (<i>Output</i>) - Positive reference voltage for the internal DAC.
VQ	13	Quiescent Voltage (<i>Output</i>) - Filter connection for internal quiescent voltage.
VA_H	17	High Voltage Analog Power (<i>Input</i>) - Positive power supply for the analog section.
VL	20	Serial Audio Interface Power (<i>Input</i>) - Positive power for the serial audio interface
BMUTE C	14	Mute Control (<i>Output</i>) - Control signal for optional mute circuit.
AMUTE C	19	
AOUTB	15	Analog Outputs (<i>Output</i>) - The full scale analog line output level is specified in the <i>Analog Characteristics</i> table.
AOUTA	18	
Control Port Definitions		
SCL/CCLK	7	Serial Control Port Clock (<i>Input</i>) - Serial clock for the control port interface.
SDA/CDIN	8	Serial Control Data (<i>Input/Output</i>) - Input/Output for I ² C data. Input for SPI data.
AD0/CS	9	Address Bit 0 / Chip Select (<i>Input</i>) - Chip address bit in I ² C Mode. Control Port enable in SPI mode.
Stand-Alone Definitions		
DIF0	8	Digital Interface Format (<i>Input</i>) - Defines the required relationship between the Left Right Clock, Serial Clock, and Serial Audio Data.
DIF1	7	
DEM	9	De-emphasis (<i>Input</i>) - Selects the standard 15μs/50μs digital de-emphasis filter response for 44.1 kHz sample rates

IC7606 - 96KHz Sampling 24-bit stereo audio ADC

BLOCK DIAGRAM

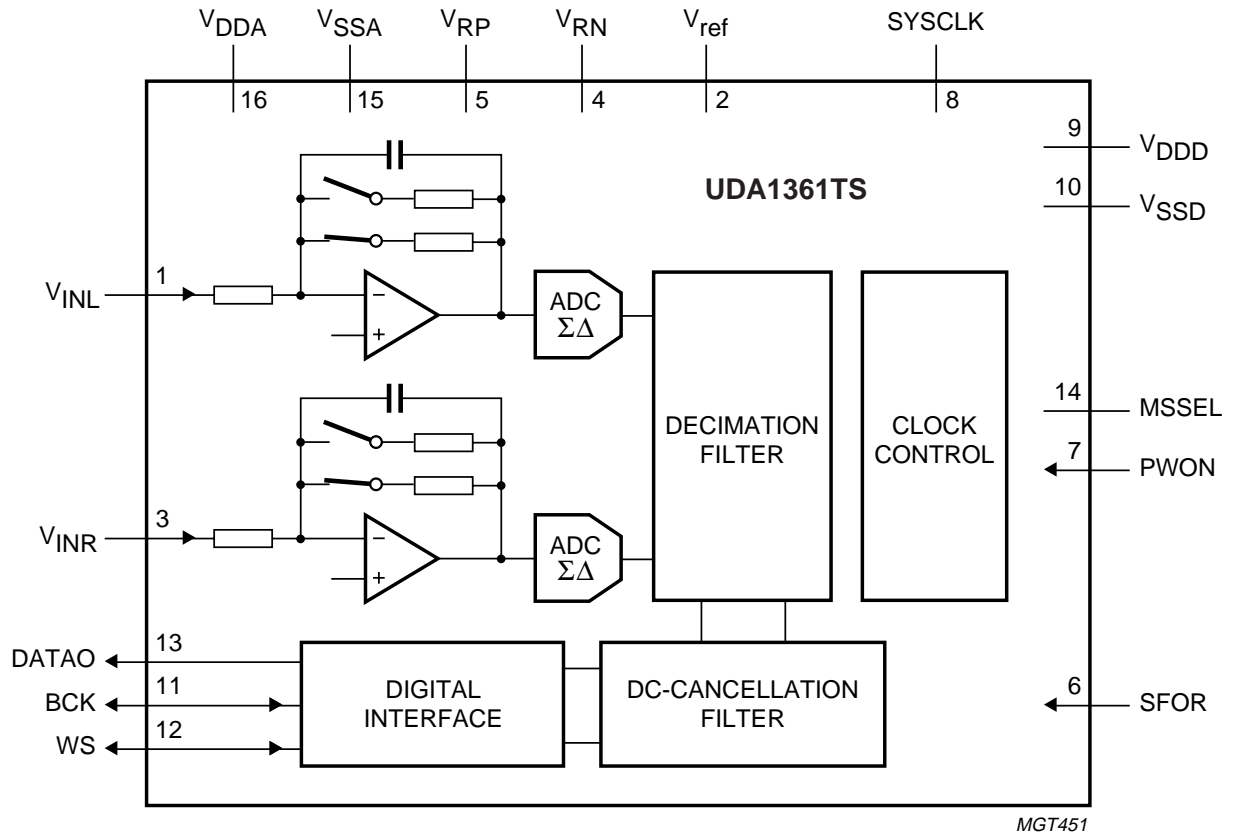
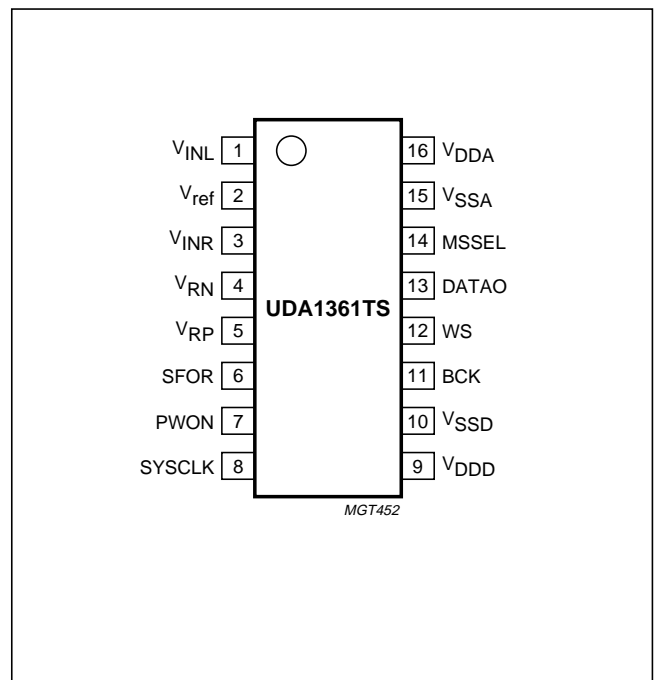


Figure 8-11

PIN DESCRIPTION AND CONFIGURATION

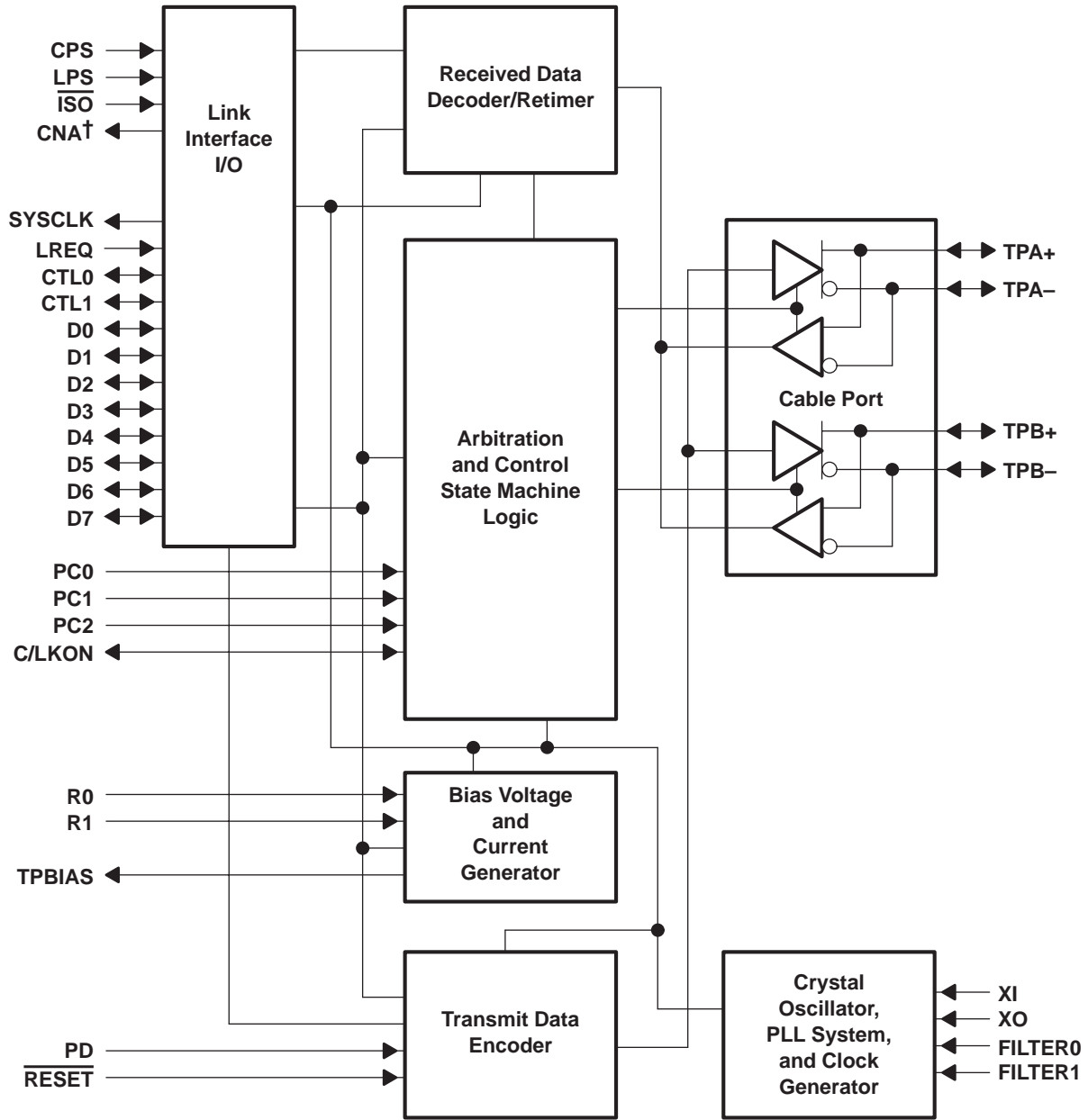
SYMBOL	PIN	DESCRIPTION
V _{INL}	1	left channel input
V _{ref}	2	reference voltage
V _{INR}	3	right channel input
V _{RN}	4	negative reference voltage
V _{RP}	5	positive reference voltage
SFOR	6	data format selection input
PWON	7	power control input
SYSCLK	8	system clock 256, 384, 512 or 768f _s
V _{DDD}	9	digital supply voltage
V _{SSD}	10	digital ground
BCK	11	bit clock input/output
WS	12	word select input/output
DATAO	13	data output
MSSEL	14	master/slave select
V _{SSA}	15	analog ground
V _{DDA}	16	analog supply voltage



8.6.2 Digital Board

IC7301 - IEEE 1394a-2000 one port cable Transceiver/Arbiter

BLOCK DIAGRAM



† CNA output is only available in the 64-pin PAP package

Figure 8-12

PIN CONFIGURATION

PHP package terminal diagram

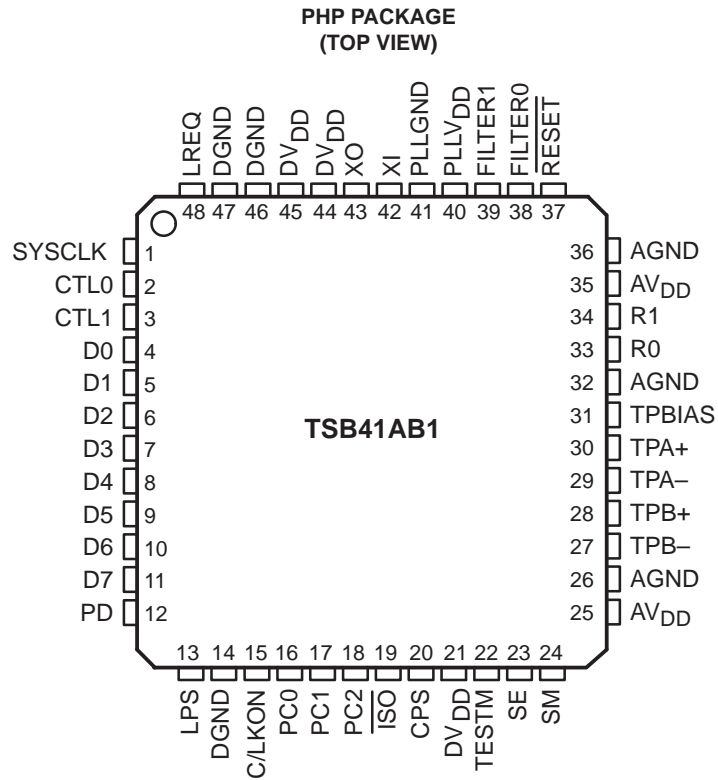


Figure 8-13

PIN DESCRIPTION

TERMINAL		TYPE	I/O	DESCRIPTION
NAME	PHP NO.			
AGND	26, 32, 36	Supply	–	Analog circuit ground terminals. These terminals should be tied together to the low-impedance circuit board ground plane.
AV _{DD}	25, 35	Supply	–	Analog circuit power terminals. A combination of high frequency decoupling capacitors near each terminal is suggested, such as paralleled 0.1 μ F and 0.001 μ F. Lower frequency 10 μ F filtering capacitors are also recommended. These supply terminals are separated from PLLV _{DD} and DV _{DD} inside the device to provide noise isolation. They should be tied at a low-impedance point on the circuit board.
C/LKON	15	CMOS	I/O	<p>Bus manager contender programming input and link-on output. On hardware reset, this terminal is used to set the default value of the contender status indicated during self-ID. Programming is done by tying the terminal through a 10-kΩ resistor to a high (contender) or low (not contender). The resistor allows the link-on output to override the input. However, it is recommended that this terminal should be programmed low, and that the contender status be set via the C register bit.</p> <p>If the TSB41AB1 is used with an LLC that has a dedicated terminal for monitoring LKON and also setting the contender status, then a 1-kΩ series resistor should be placed on the LKON line between the PHY and LLC to prevent bus contention.</p> <p>Following hardware reset, this terminal is the link-on output, which is used to notify the LLC to power up and become active. The link-on output is a square-wave signal with a period of approximately 163 ns (8 SYSCLK cycles) when active. The link-on output is otherwise driven low, except during hardware reset when it is high-impedance.</p> <p>The link-on output is activated if the LLC is inactive (LPS inactive or the LCtrl bit cleared) and when:</p> <ol style="list-style-type: none"> the PHY receives a link-on PHY packet addressed to this node, or the PEI (port-event interrupt) register bit is 1, or any of the CTOI (configuration-time-out interrupt), CPSI (cable-power-status interrupt), or STOI (state-time-out interrupt) register bits are 1 and the RPIE (resuming-port interrupt enable) register bit is also 1. <p>Once activated, the link-on output continues active until the LLC becomes active (both LPS active and the LCtrl bit set). The PHY also deasserts the link-on output when a bus reset occurs unless the link-on output would otherwise be active because one of the interrupt bits is set (that is, the link-on output is active due solely to the reception of a link-on PHY packet).</p> <p>NOTE: If an interrupt condition exists which would otherwise cause the link-on output to be activated if the LLC were inactive, the link-on output is activated when the LLC subsequently becomes inactive.</p>
CNA	N/A	CMOS	O	Cable-not-active output. This terminal is asserted high when there is no incoming bias voltage.
CPS	20	CMOS	I	Cable power status input. This terminal is normally connected to cable power through a 400-k Ω resistor. This circuit drives an internal comparator that is used to detect the presence of cable power. This terminal should be tied directly to DV _{DD} supply if application does not require it to be used.
CTL0 CTL1	2 3	CMOS	I/O	Control I/Os. These bidirectional signals control communication between the TSB41AB1 and the LLC. Bus holders are built into these terminals.
D0 D1 D2 D3 D4 D5 D6 D7	4 5 6 7 8 9 10 11	CMOS	I/O	Data I/Os. These are bidirectional data signals between the TSB41AB1 and the LLC. Bus holders are built into these terminals.

TERMINAL		TYPE	I/O	DESCRIPTION
NAME	PHP NO.			
DGND	14, 46, 47	Supply	–	Digital circuit ground terminals. These terminals should be tied together to the low-impedance circuit board ground plane.
DVDD	21, 44, 45	Supply	–	Digital circuit power terminals. A combination of high-frequency decoupling capacitors near each terminal is suggested, such as paralleled 0.1 μ F and 0.001 μ F. Lower frequency 10 μ F filtering capacitors are also recommended. These supply terminals are separated from PLLV _{DD} and AV _{DD} inside the device to provide noise isolation. They should be tied at a low-impedance point on the circuit board.
FILTER0 FILTER1	38 39	CMOS	I/O	PLL filter terminals. These terminals are connected to an external capacitor to form a lag-lead filter required for stable operation of the internal frequency multiplier PLL running from the crystal oscillator. A 0.1 μ F \pm 10% capacitor is the only external component required to complete this filter.
$\overline{\text{ISO}}$	19	CMOS	I	Link interface isolation control input. This terminal controls the operation of output differentiation logic on the CTL and D terminals. If an optional Annex J type isolation barrier is implemented between the TSB41AB1 and LLC, the $\overline{\text{ISO}}$ terminal should be tied low to enable the differentiation logic. If no isolation barrier is implemented (direct connection), or TI bus holder isolation is implemented, the $\overline{\text{ISO}}$ terminal should be tied high to disable the differentiation logic. For additional information refer to TI application note <i>Galvanic Isolation of the IEEE 1394-1995 Serial Bus</i> , SLLA011.
LPS	13	CMOS	I	Link power status input. This terminal monitors the active/power status of the link layer controller and controls the state of the PHY-LLC interface. This terminal should be connected through a 10-k Ω resistor either to the V _{DD} supplying the LLC, or to a pulsed output which is active when the LLC is powered (see Figure 9). A pulsed signal should be used when an isolation barrier exists between the LLC and PHY. (See Figure 10.) The LPS input is considered inactive if it is sampled low by the PHY for more than 2.6 μ s (128 SYSCLK cycles), and is considered active otherwise (that is, asserted steady high or an oscillating signal with a low time less than 2.6 μ s). The LPS input must be high for at least 21 ns to guarantee that a high is observed by the PHY. When the TSB41AB1 detects that LPS is inactive, it places the PHY-LLC interface into a low-power reset state. In the reset state, the CTL and D outputs are held in the logic zero state and the LREQ input is ignored; however, the SYSCLK output remains active. If the LPS input remains low for more than 26 μ s (1280 SYSCLK cycles), the PHY-LLC interface is put into a low-power disabled state in which the SYSCLK output is also held inactive. The PHY-LLC interface is placed into the disabled state upon hardware reset. The LLC is considered active only if both the LPS input is active and the LCtrl register bit is set to 1, and is considered inactive if either the LPS input is inactive or the LCtrl register bit is cleared to 0.
LREQ	48	CMOS	I	LLC request input. The LLC uses this input to initiate a service request to the TSB41AB1. Bus holder is built into this terminal.
PC0 PC1 PC2	16 17 18	CMOS	I	Power class programming inputs. On hardware reset, these inputs set the default value of the power class indicated during self-ID. Programming is done by tying these terminals high or low. Refer to Table 9 for encoding.
PD	12	CMOS	I	Power-down input. A high on this terminal turns off all internal circuitry except the cable-active monitor circuits, which control the CNA output (64-terminal PAP package only). Asserting the PD input high also activates an internal pulldown on the $\overline{\text{RESET}}$ terminal to force a reset of the internal control logic. (PD is provided for legacy compatibility and is not recommended for power management in place of IEEE 1394a-2000 suspend/resume LPS and C/LKON features.)

TERMINAL		TYPE	I/O	DESCRIPTION
NAME	PHP NO.			
PLL _{GND}	41	Supply	–	PLL circuit ground terminals. These terminals should be tied together to the low-impedance circuit board ground plane.
PLL _{V_{DD}}	40	Supply	–	PLL circuit power terminals. A combination of high-frequency decoupling capacitors near each terminal is suggested, such as paralleled 0.1 μ F and 0.001 μ F. Lower frequency 10 μ F filtering capacitors are also recommended. This supply terminal is separated from DV _{DD} and AV _{DD} inside the device to provide noise isolation. It should be tied at a low-impedance point on the circuit board.
R0 R1	33 34	Bias	–	Current setting resistor terminals. These terminals are connected through an external resistor to set the internal operating currents and cable driver output currents. A resistance of 6.34 k Ω \pm 1.0% is required to meet the IEEE Std 1394-1995 output voltage limits.
$\overline{\text{RESET}}$	37	CMOS	I	Logic reset input. Asserting this terminal low resets the internal logic. An internal pullup resistor to V _{DD} is provided so only an external delay capacitor is required for proper power-up operation (see <i>power-up reset</i> in the Application Information section). The $\overline{\text{RESET}}$ terminal also incorporates an internal pulldown which is activated when the PD input is asserted high. This input is otherwise a standard logic input, and may also be driven by an open-drain type driver.
SE	23	CMOS	I	Test control input. This input is used in manufacturing test of the TSB41AB1. For normal use this terminal may be tied to GND through a 1-k Ω pulldown resistor or it may be tied to GND directly.
SM	24	CMOS	I	Test control input. This input is used in manufacturing test of the TSB41AB1. For normal use this terminal should be tied to GND.
SYSC _{CLK}	1	CMOS	O	System clock output. Provides a 49.152-MHz clock signal, synchronized with data transfers, to the LLC.
TEST _M	22	CMOS	I	Test control input. This input is used in manufacturing test of the TSB41AB1. For normal use this terminal should be tied to V _{DD} .
TPA ₊	30	Cable	I/O	Twisted-pair cable A differential signal terminals. Board traces from the pair of positive and negative differential signal terminals should be kept matched and as short as possible to the external load resistors and to the cable connector.
TPA _–	29	Cable	I/O	
TPB ₊	28	Cable	I/O	Twisted-pair cable B differential signal terminals. Board traces from the pair of positive and negative differential signal terminals should be kept matched and as short as possible to the external load resistors and to the cable connector.
TPB _–	27	Cable	I/O	
TPBIAS	31	Cable	I/O	Twisted-pair bias output. This provides the 1.86 V nominal bias voltage needed for proper operation of the twisted-pair cable drivers and receivers, and for signaling to the remote nodes that there is an active cable connection.
XI XO	42 43	Crystal	–	Crystal oscillator inputs. These terminals connect to a 24.576-MHz parallel resonant fundamental mode crystal. The optimum values for the external shunt capacitors are dependent on the specifications of the crystal used (see <i>crystal selection</i> in the Application Information section). When an external clock source is used, XI should be the input and XO should be left open, and the clock must be supplied before the device is powered on.

IC7401 - 4x10bit DigitalVideo Decoder with microvision

BLOCK DIAGRAM

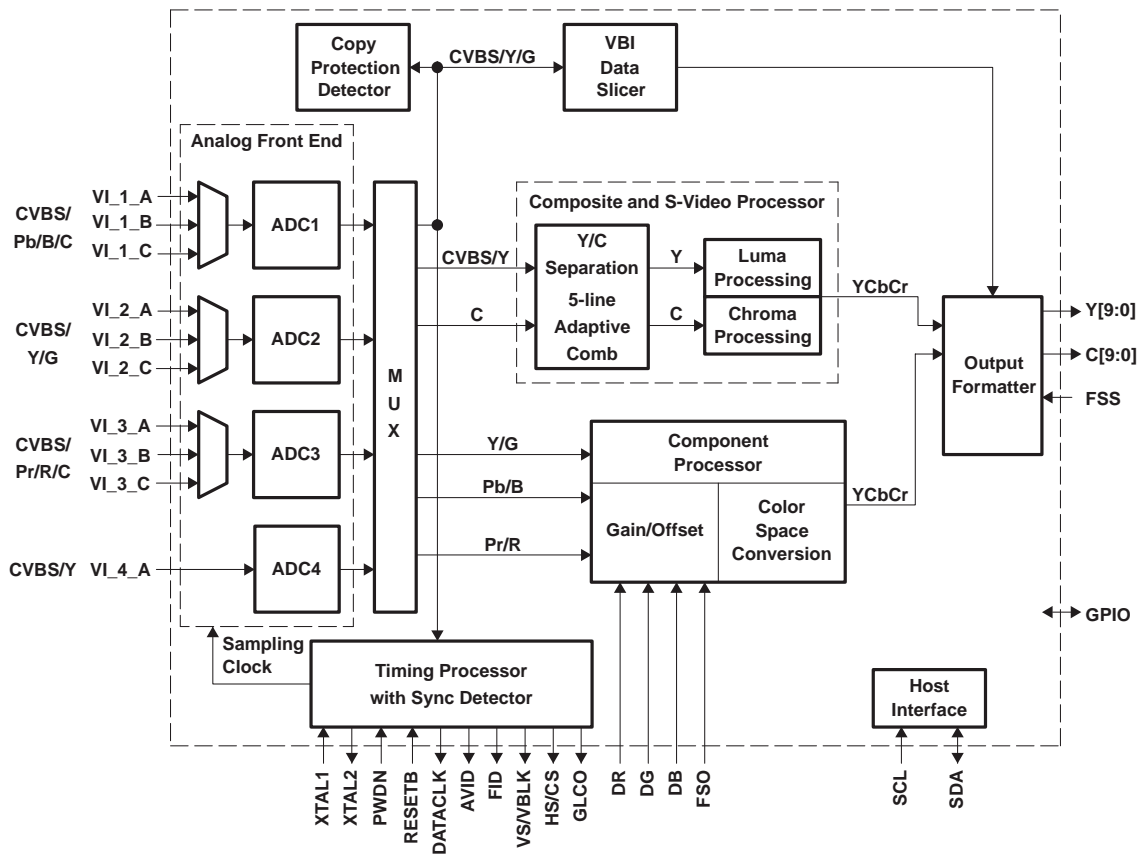


Figure 8-14

PIN CONFIGURATION

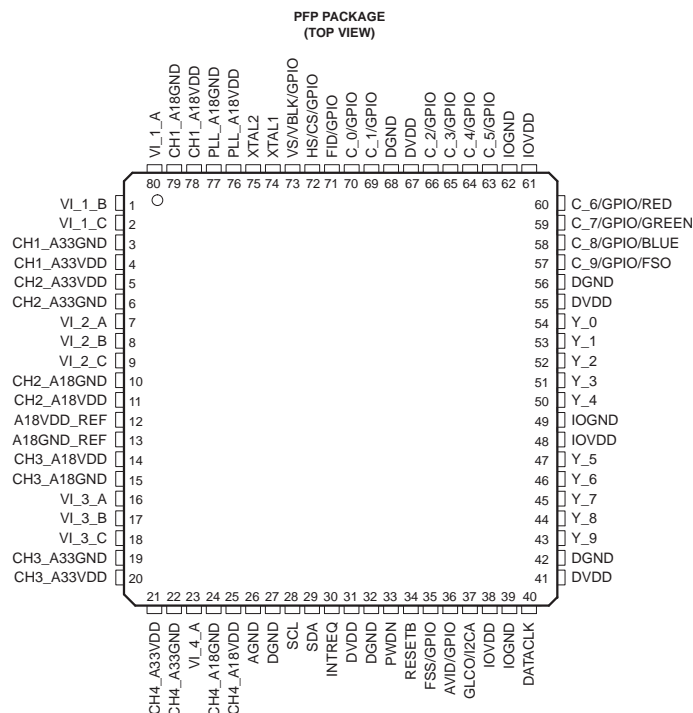


Figure 8-15

PIN DESCRIPTION

TERMINAL NAME	NUMBER	I/O	DESCRIPTION
Analog Video			
VI_1_A	80	I	VI_1_x: Analog video input for CVBS/Pb/B/C VI_2_x: Analog video input for CVBS/Y/G VI_3_x: Analog video input for CVBS/Pr/R/C VI_4_A: Analog video input for CVBS/Y Up to 10 composite, 4 S-video, and 2 composite or 3 component video inputs (or a combination thereof) can be supported. The inputs must be ac-coupled. The recommended coupling capacitor is 0.1 μ F. The possible input configurations are listed in the input select register at I ² C subaddress 00h (see Section 2.11.1).
VI_1_B	1		
VI_1_C	2		
VI_2_A	7		
VI_2_B	8		
VI_2_C	9		
VI_3_A	16		
VI_3_B	17		
VI_3_C	18		
VI_4_A	23		
Clock Signals			
DATACLK	40	O	Line-locked data output clock.
XTAL1	74	I	External clock reference input. It may be connected to an external oscillator with a 1.8-V compatible clock signal or a 14.31818-MHz crystal oscillator.
XTAL2	75	O	External clock reference output. Not connected if XTAL1 is driven by an external single-ended oscillator.
Digital Video			
C[9:0]/ GPIO[9:0]	57, 58, 59, 60, 63, 64, 65, 66, 69, 70	O	Digital video output of CbCr, C[9] is MSB and C[0] is LSB. Unused outputs can be left unconnected. Also, these terminals can be programmable general-purpose I/O. For the 8-bit mode, the two LSBs are ignored.
D_BLUE	58	I	Digital BLUE input from overlay device
D_GREEN	59	I	Digital GREEN input from overlay device
D_RED	60	I	Digital RED input from overlay device
FSO	57	I	Fast-switch overlay between digital RGB and any video
Y[9:0]	43, 44, 45, 46, 47, 50, 51, 52, 53, 54	O	Digital video output of Y/YCbCr, Y[9] is MSB and Y[0] is LSB. For the 8-bit mode, the two LSBs are ignored. Unused outputs can be left unconnected.
Miscellaneous Signals			
FSS/GPIO	35	I/O	Fast-switch (blinking) input. Switching signal between the synchronous component video (YPbPr/RGB) and the composite video input. Programmable general-purpose I/O
GLCO/I2CA	37	I/O	Genlock control output (GLCO). Two Genlock data formats are available: TI format and real time control (RTC) format. During reset, this terminal is an input used to program the I ² C address LSB.
INTREQ	30	O	Interrupt request
PWDN	33	I	Power down input: 1 = Power down 0 = Normal mode
RESETB	34	I	Reset input, active low

TERMINAL NAME	NUMBER	I/O	DESCRIPTION
Host Interface			
SCL	28	I	I ² C clock input
SDA	29	I/O	I ² C data bus
Power Supplies			
AGND	26	I	Analog ground. Connect to analog ground.
A18GND_REF	13	I	Analog 1.8-V return
A18VDD_REF	12	I	Analog power for reference 1.8 V
CH1_A18GND CH2_A18GND CH3_A18GND CH4_A18GND	79 10 15 24	I	Analog 1.8-V return
CH1_A18VDD CH2_A18VDD CH3_A18VDD CH4_A18VDD	78 11 14 25	I	Analog power. Connect to 1.8 V.
CH1_A33GND CH2_A33GND CH3_A33GND CH4_A33GND	3 6 19 22	I	Analog 3.3-V return
CH1_A33VDD CH2_A33VDD CH3_A33VDD CH4_A33VDD	4 5 20 21	I	Analog power. Connect to 3.3 V.
DGND	27, 32, 42, 56, 68	I	Digital return
DVDD	31, 41, 55, 67	I	Digital power. Connect to 1.8 V.
IOGND	39, 49, 62	I	Digital power return
IOVDD	38, 48, 61	I	Digital power. Connect to 3.3 V or less for reduced noise.
PLL_A18GND	77	I	Analog power return
PLL_A18VDD	76	I	Analog power. Connect to 1.8 V.
Sync Signals			
HS/CS/GPIO	72	I/O	Horizontal sync output or digital composite sync output Programmable general-purpose I/O
VS/VBLK/GPIO	73	I/O	Vertical sync output (for modes with dedicated VSYNC) or VBLK output Programmable general-purpose I/O
FID/GPIO	71	I/O	Odd/even field indicator output. This terminal needs a pull-down resistor. Programmable general-purpose I/O
AVID/GPIO	36	I/O	Active video indicator output Programmable general-purpose I/O

IC7501 - Power Distribution Switches

BLOCK DIAGRAM

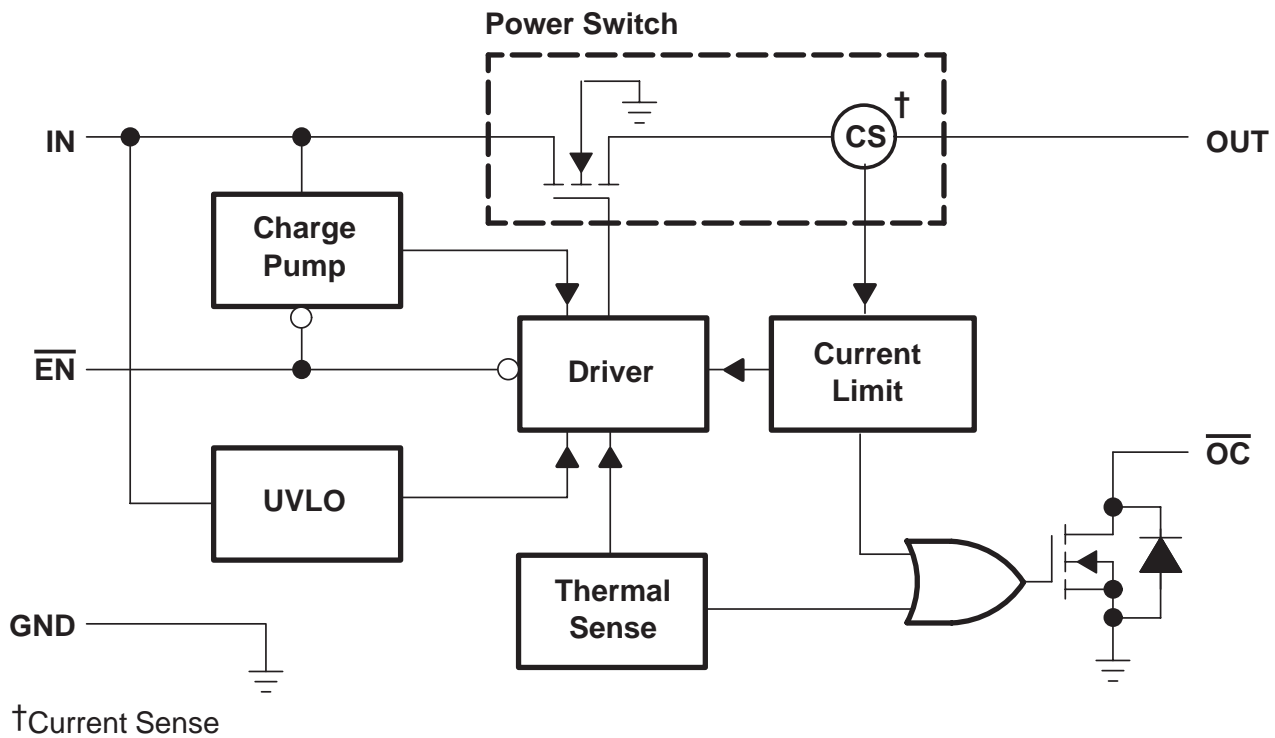


Figure 8-16

PIN CONFIGURATION

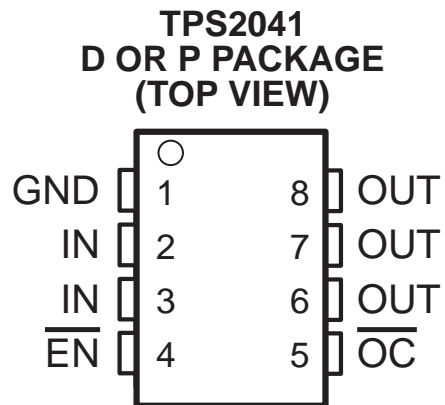
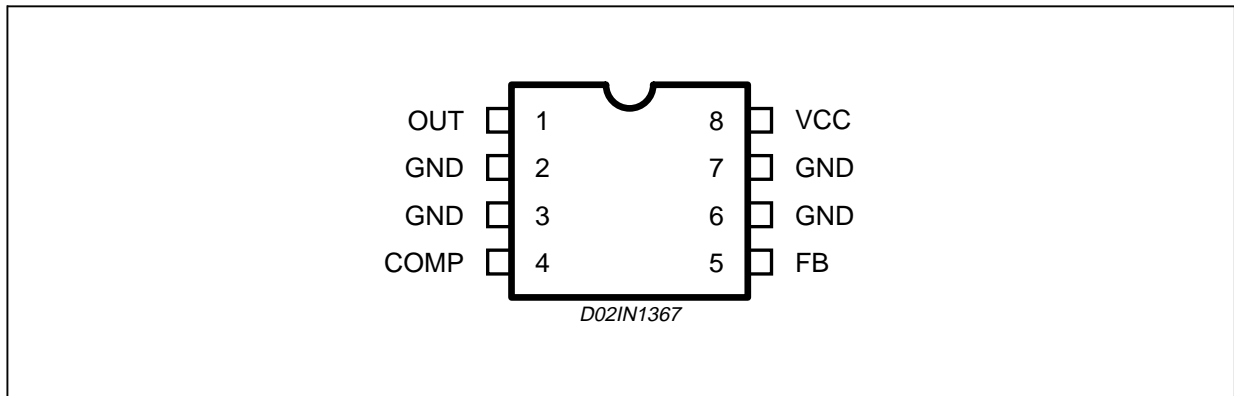


Figure 8-17

PIN DESCRIPTION

NAME	TERMINAL		I/O	DESCRIPTION
	NO.			
	D OR P			
	TPS2041	TPS2051		
$\overline{\text{EN}}$	4	–	I	Enable input. Logic low turns on power switch.
EN	–	4	I	Enable input. Logic high turns on power switch.
GND	1	1	I	Ground
IN	2, 3	2, 3	I	Input voltage
$\overline{\text{OC}}$	5	5	O	Over current. Logic output active low
OUT	6, 7, 8	6, 7, 8	O	Power-switch output

IC7521 - 2A Switch Step Down Switching Regulator**PIN DESCRIPTION AND CONFIGURATION****PIN CONNECTION****PIN DESCRIPTION**

N°	Pin	Function
1	OUT	Regulator Output.
2,3,6,7	GND	Ground.
4	COMP	E/A output for frequency compensation.
5	FB	Feedback input. Connecting directly to this pin results in an output voltage of 1.23V. An external resistive divider is required for higher output voltages.
8	VCC	Unregulated DC input voltage.

IC7595 - Voltage Detector Series with Programmable Delay

BLOCK DIAGRAM

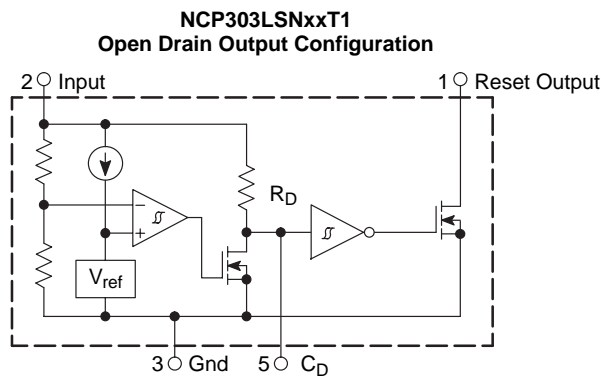
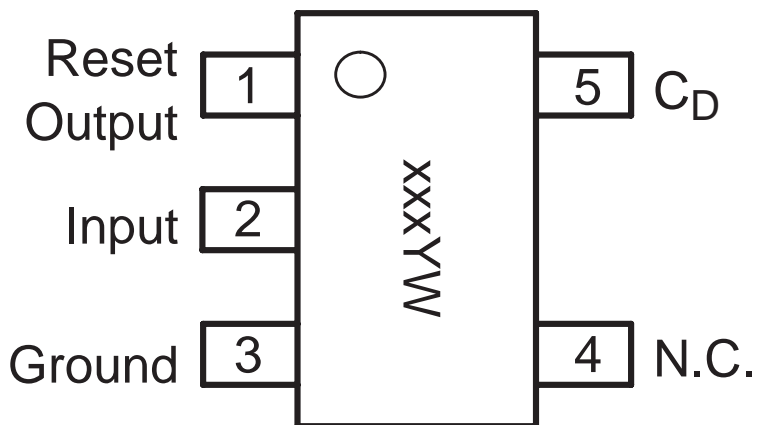


Figure 8-18

PIN DESCRIPTION AND CONFIGURATION

PIN CONNECTIONS AND MARKING DIAGRAM



xxx = 302 or 303
 Y = Year
 W = Work Week

(Top View)

Figure 8-19

DVDR3350H, DVDR3360H & DVDR3370H**MISCELLANEOUS**

0001	3139 247 11361	MODULE DRIVE D4.3 CLOSED (Aluminium)
0001	3139 247 11362	MODULE DRIVE D4.3 CLOSED (Copper)
0002	2822 062 00069	HDD 3.5" 80GB WD800BB-55JKC0 B DVDR3350H ONLY
0002	2822 062 00071	HDD 3.5" 160GB WD1600BB-55GUC0 DVDR3360H ONLY
0002	2822 062 00099	HDD 3.5" 250GB 6L250R0 (MAXT)Y DVDR3370H ONLY
0011	3139 247 11652	△ PSU 05H80 WR
0021	3139 248 85821	PCBAS DVDR3350H ANA BOARD NA /37, /55, /96 ONLY
0021	3139 248 86761	PCBAS DVDR3350H ANA BOARD AP /75, /97 ONLY
0031	3139 248 85811	PCBAS DVDR3350H DIGI BOARD NA /37 ONLY
0031	3139 248 87271	PCBAS DVDR3350H DIGI BOARD LA /55 ONLY
0031	3139 248 87781	PCBAS DVDR3350H DIGI BOARD/96 /96 ONLY
0031	3139 248 86771	PCBAS DVDR3350H DIGI BOARD AP /75, /97 ONLY
0041	3139 248 85801	PCBAS DVDR3350H FRONT BOARD
0051	3139 248 85791	PCBAS DVDR3350H STANDBY BOARD
0164	3103 601 20231	SPRING GROUND
0196	3139 241 23061	COVER TOP DVDR3300H
0228	3139 241 60432	PLATE REAR DVDR3350H/37 /37 ONLY
0228	3139 241 23781	PLATE REAR DVDR3350H/55 /55 ONLY
0228	3139 241 23721	PLATE REAR DVDR3350H/96 /96 ONLY
0228	3139 241 60421	PLATE REAR DVDR3350H/97 /75, /97 ONLY
0258	3139 241 21371	BRACKET LOADER
0261	3103 604 01141	COVER DUST
0262	3103 603 20122	FOAM RUBBER SEALING
0264	3139 241 23031	BRACKET HDD DVDR3300H
0272	2522 200 98475	SCR PAN TORX ST BK #6-32X6
0288	4822 532 60948	BUSH
0292	2822 031 00024	FAN 12VDC 0.8W 3100RPM B
0333	2422 549 00665	REMOTE CONTR DVDR3350H/NAFTA B
0336	2422 070 98202	MAINSCORD UL 6A 2M3 VH BK B /37 ONLY
0336	2422 070 00026	MAINSCORD BRZ 10A 1M85 VH B /55 ONLY
0336	2422 070 00093	MAINSCORD TWN 7A 1M8 VH BK B /96 ONLY
0336	2422 070 98233	MAINSCORD AUS 7A5 1M8 VH BK B /75 ONLY
0336	4822 321 11499	△ MAINSCORD 2.0M - EU /97 ONLY
0337	2422 076 00655	CBLE CINCH 1M5 CINCH YERDWH B
0344	3104 128 90403	ANTENNA CABLE NTSC /37, /55, /96 ONLY
0344	4822 320 50377	CONNECT. CABLE PAL /75, /97 ONLY
0385	3139 128 73010	△ MAINS PLUG ADAPTER GR1-AX /55 ONLY
8002	3139 241 01371	FFC FOIL 14P/480/14P BD 1MMP
8003	3139 241 01361	FFC FOIL 20P/340/20P BD 1MMP

8004	3139 111 03991	FFC FOIL 22P/280/22P BD 1MMP
8005	3139 110 35851	FFC FOIL 24P/180/24P BD 1mmP
8021	3139 241 00921	CBLE IDE 40P/280/40P IDE UL
8022	3139 241 00921	CBLE IDE 40P/280/40P IDE UL
8031	3103 601 00472	CBLE HR 4P/180/4P LC UL
8032	3139 241 01211	CBLE HR 04P/340/04P LC UL
P001	3141 079 34251	CAB. FRONT ASSY DVDR3350H/37 /37, /55 ONLY
P001	3141 079 34401	CAB ASSY DVDR3360H/97 DVDR3360H/75, /97 ONLY
P001	3141 079 34661	CAB ASSY DVDR3360H/96 DVDR3360H/96 ONLY
P001	3141 079 34761	CAB. FRONT ASSY DVDR3370H/75 DVDR33570H/75, /96, /97 ONLY
P002	3141 079 34271	COVER TRAY ASSY DVDR 3350H/37
P003	3141 079 34261	FRAME ASSY DVDR3350H/37

**PCBAS DVDR3350H ANA BOARD NA
(DVDR3350H/37/55, DVDR3360H/96 & DVDR3370H/96 ONLY)
MISCELLANEOUS**

1100	2422 542 00023	TUMOD V U PLL F MN B
1201	2422 026 05291	SOC CINCH H 8P F YEWHRDBU
1203	4822 267 10994	4P MDIN
1205	2422 025 19067	CON V 24P F 1.00 FFC 0.3 Y
1208	2422 026 05308	SOC CINCH H 3P F YEWHRD Y
1500	4822 242 10434	L1101-95263-0E1(18,432MHZ)
1600	2422 025 18009	CON BM V 22P F 1.00 FFC 0.3 Y
1701	4822 267 31729	SOC CINCH H 1P F BK B
1800	2422 025 18873	CON V 20P F 1.00 FFC 0.3 Y
1803	2422 025 17899	CON V 14P F 1.00 FFC 0.3 Y

COILS & FILTERS

3617	4822 157 11706	FXDIND A 02 10U PM5 COL A
5100	4822 157 11235	FXDIND A 02 22U PM5 COL A
5102	2422 549 43062	FXDIND 0603 100MHZ 600R COL R
5104	4822 157 11139	FXDIND A 02 6U8 PM5 COL A
5105	4822 157 11706	FXDIND A 02 10U PM5 COL A
5106	2422 549 43062	FXDIND 0603 100MHZ 600R COL R
5107	4822 157 11706	FXDIND A 02 10U PM5 COL A
5400	4822 157 11737	IND FXD LHL08 S 22U PM10 A
5401	4822 157 11706	FXDIND A 02 10U PM5 COL A
5402	4822 157 11706	FXDIND A 02 10U PM5 COL A
5500	4822 157 11706	FXDIND A 02 10U PM5 COL A
5601	4822 157 11706	FXDIND A 02 10U PM5 COL A
5700	2422 549 00491	TFM SIG RF 049S20056 B

DIODES

6200	9322 129 41685	BZM55-C12
6201	9322 129 41685	BZM55-C12
6202	9322 129 41685	BZM55-C12
6210	9322 129 41685	BZM55-C12
6211	9322 129 41685	BZM55-C12
6212	9322 129 41685	BZM55-C12
6213	9322 129 41685	BZM55-C12
6214	9322 129 41685	BZM55-C12
6215	9322 129 41685	BZM55-C12
6304	4822 130 11397	BAS316
6305	4822 130 11397	BAS316
6306	4822 130 11397	BAS316
6307	4822 130 11397	BAS316
6400	4822 130 10837	UDZS8.2B
6401	4822 130 11397	BAS316
6500	4822 130 11397	BAS316
6600	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7100	3198 010 42320	BC857BW
7104	5322 209 70225	LM393D
7200	3198 010 42310	BC847BW
7201	3198 010 42310	BC847BW
7202	3198 010 42310	BC847BW
7203	3198 010 42320	BC857BW
7204	3198 010 42310	BC847BW
7205	3198 010 42310	BC847BW
7300	4822 209 62312	MC33078D
7301	5322 209 11102	HEF4052BT
7302	9340 219 30115	BC817-25W
7303	9340 219 30115	BC817-25W
7304	4822 130 60854	DTA124EU-W
7305	4822 130 60854	DTA124EU-W
7400	3198 010 42310	BC847BW
7401	4822 130 61553	DTC124EU
7402	9322 163 75685	FET SIG SM SI2306DS(VISH)
7403	3198 010 42320	BC857BW
7404	3198 010 42310	BC847BW
7405	3198 010 42310	BC847BW
7500	9322 186 86671	IC SM MSP3425G-QG-B8V3 (MIAS)
7600	4822 130 60854	DTA124EU-W
7602	4822 130 61553	DTC124EU
7603	9322 213 55668	IC SM CS4351-CZZ (CILO) R
7604	3198 010 44350	TRA SIG SM BC807-25W (COL) R
7605	3198 010 42310	BC847BW
7606	9352 670 99118	IC SM UDA1361TS/N1 (PHSE) R
7700	5322 209 11517	PC74HCU04T
7800	9340 547 13215	FET SIG SM BSH103 (PHSE) R
7801	9340 547 13215	FET SIG SM BSH103 (PHSE) R
7802	3198 010 42310	BC847BW
7803	4822 130 41246	BC327-25

**PCBAS DVDR3350H ANA BOARD AP
(DVDR3360H/75/97 & DVDR3370H/75/97 ONLY)****MISCELLANEOUS**

1101	2422 542 00025	TUN IF V U PLL IEC BGIDKL B
1201	2422 026 05291	SOC CINCH H 8P F YEWHRDBU
1203	4822 267 10994	4P MDIN
1205	2422 025 19067	CON V 24P F 1.00 FFC 0.3 Y
1208	2422 026 05308	SOC CINCH H 3P F YEWHRDY
1500	4822 242 10434	L1101-95263-0E1(18, 432MHZ)
1600	2422 025 18009	CON BM V 22P F 1.00 FFC 0.3 Y
1701	4822 267 31729	SOC CINCH H 1P F BK B
1800	2422 025 18873	CON V 20P F 1.00 FFC 0.3 Y
1803	2422 025 17899	CON V 14P F 1.00 FFC 0.3 Y

COILS & FILTERS

3617	4822 157 11706	10UH 5% 2, 4X3, 4
5100	4822 157 11235	22UH LANO2TB220J PM5 A
5102	2422 549 43062	IND FXD SM EMI 100MHZ 600R R
5103	2422 549 43062	IND FXD SM EMI 100MHZ 600R R
5104	4822 157 11139	6, 8UH 5%
5105	4822 157 11706	10UH 5% 2, 4X3, 4
5106	2422 549 43062	IND FXD SM EMI 100MHZ 600R R
5107	4822 157 11706	10UH 5% 2, 4X3, 4
5400	4822 157 11737	22UH 10% 9X9, 5
5401	4822 157 11706	10UH 5% 2, 4X3, 4
5402	4822 157 11706	10UH 5% 2, 4X3, 4
5500	4822 157 11706	10UH 5% 2, 4X3, 4
5601	4822 157 11706	10UH 5% 2, 4X3, 4
5700	2422 549 00491	TFM SIG RF 049S20056 B

DIODES

6200	9322 129 41685	BZM55-C12
6201	9322 129 41685	BZM55-C12
6202	9322 129 41685	BZM55-C12
6210	9322 129 41685	BZM55-C12
6211	9322 129 41685	BZM55-C12
6212	9322 129 41685	BZM55-C12
6213	9322 129 41685	BZM55-C12
6214	9322 129 41685	BZM55-C12
6215	9322 129 41685	BZM55-C12
6304	4822 130 11397	BAS316
6305	4822 130 11397	BAS316
6306	4822 130 11397	BAS316
6307	4822 130 11397	BAS316
6400	4822 130 10837	UDZS8.2B
6401	4822 130 11397	BAS316
6500	4822 130 11397	BAS316
6600	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7100	3198 010 42320	BC857BW
7104	5322 209 70225	LM393D
7200	3198 010 42310	BC847BW
7201	3198 010 42310	BC847BW
7202	3198 010 42310	BC847BW
7203	3198 010 42320	BC857BW
7204	3198 010 42310	BC847BW
7205	3198 010 42310	BC847BW
7300	4822 209 62312	MC33078D
7301	5322 209 11102	HEF4052BT
7302	9340 219 30115	BC817-25W
7303	9340 219 30115	BC817-25W
7304	4822 130 60854	DTA124EU-W
7305	4822 130 60854	DTA124EU-W
7400	3198 010 42310	BC847BW
7401	4822 130 61553	DTC124EU
7402	9322 163 75685	FET SIG SM SI2306DS(VISH)
7403	3198 010 42320	BC857BW
7404	3198 010 42310	BC847BW
7405	3198 010 42310	BC847BW
7500	9322 186 87668	SM MSP3415G-QG-B8V3 (MIAS)
7600	4822 130 60854	DTA124EU-W
7602	4822 130 61553	DTC124EU
7603	9322 213 55668	IC SM CS4351-CZZ (CILO) R
7604	3198 010 44350	TRA SIG SM BC807-25W (COL) R
7605	3198 010 42310	BC847BW
7606	9352 670 99118	IC SM UDA1361TS/N1 (PHSE) R
7700	5322 209 11517	PC74HCU04T
7800	9340 547 13215	FET SIG SM BSH103 (PHSE) R
7801	9340 547 13215	FET SIG SM BSH103 (PHSE) R
7802	3198 010 42310	BC847BW
7803	4822 130 41246	BC327-25

PCBAS DVDR3350H DIGI BOARD NA (DVDR3350H/37 ONLY)**MISCELLANEOUS**

1101	2422 543 01502	RES XTL 13MHZ5 16P AT-49 A
1351	2422 543 01503	RES XTL 24MHZ576 20P AT-49 A
1461	4822 242 71861	KD6100FCA (14, 31818MHZ)
1522	2422 025 19067	CON V 24P F 1.00 FFC 0.3 Y
1536	2422 025 18009	CON BM V 22P F 1.00 FFC 0.3 Y
1551	2422 025 18873	CON V 20P F 1.00 FFC 0.3 Y
1571	2422 025 17682	CON BM V 40P M 2.54 440094 B
1671	2422 025 17682	CON BM V 40P M 2.54 440094 B

RESISTORS

3171	4822 117 13573	NETW 4 X 47R 5% MNR14
3172	4822 117 13573	NETW 4 X 47R 5% MNR14
3173	4822 117 13573	NETW 4 X 47R 5% MNR14
3174	4822 117 13573	NETW 4 X 47R 5% MNR14
3175	4822 117 13573	NETW 4 X 47R 5% MNR14
3176	4822 117 13573	NETW 4 X 47R 5% MNR14
3177	4822 117 13573	NETW 4 X 47R 5% MNR14
3178	4822 117 13573	NETW 4 X 47R 5% MNR14
3181	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3182	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3183	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3184	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3185	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3186	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3187	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3188	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3251	4822 117 13573	NETW 4 X 47R 5% MNR14
3253	4822 117 13573	NETW 4 X 47R 5% MNR14
3255	4822 117 13573	NETW 4 X 47R 5% MNR14
3257	4822 117 13573	NETW 4 X 47R 5% MNR14
3259	4822 117 13573	NETW 4 X 47R 5% MNR14
3261	4822 117 13573	NETW 4 X 47R 5% MNR14
3263	4822 117 13573	NETW 4 X 47R 5% MNR14
3265	4822 117 13573	NETW 4 X 47R 5% MNR14
3267	4822 117 13573	NETW 4 X 47R 5% MNR14
3269	4822 117 13573	NETW 4 X 47R 5% MNR14
3271	4822 117 13573	NETW 4 X 47R 5% MNR14
3273	4822 117 13573	NETW 4 X 47R 5% MNR14
3275	4822 117 13573	NETW 4 X 47R 5% MNR14
3277	4822 117 13573	NETW 4 X 47R 5% MNR14
3281	4822 117 13573	NETW 4 X 47R 5% MNR14
3488	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3492	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3573	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3574	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3575	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3576	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3579	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3584	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3673	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3674	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3675	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3676	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3679	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3684	3198 031 13390	RST NETW 1206 4X 33R PM5 COL

COILS & FILTERS

5121	4822 157 11717	BLM31P500SPT
5135	4822 157 11499	BLM11P600SPT
5141	4822 157 11717	BLM31P500SPT
5151	4822 157 11717	BLM31P500SPT
5165	4822 157 11499	BLM11P600SPT
5166	4822 157 11499	BLM11P600SPT
5171	4822 157 11499	BLM11P600SPT
5181	4822 157 11499	BLM11P600SPT
5201	4822 157 11717	BLM31P500SPT
5291	4822 157 11499	BLM11P600SPT
5301	4822 157 11499	BLM11P600SPT
5401	4822 157 11499	BLM11P600SPT
5411	4822 157 11499	BLM11P600SPT
5421	4822 157 11499	BLM11P600SPT
5431	4822 157 11499	BLM11P600SPT
5511	4822 157 11717	BLM31P500SPT
5518	4822 157 11717	BLM31P500SPT
5521	4822 157 11717	BLM31P500SPT
5525	2422 535 94639	IND FXD LHL08 S 10U PM20

DIODES

6101	5322 130 34337	BAV99
6501	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6502	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6505	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6506	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6521	3198 010 10720	DIO REC SS24 COL R
6595	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7101	9322 219 04671	IC SM DMN-8652 B0 (LLC0) Y
7111	9340 425 20115	TRA SIG SM BC847BS (PHSE) R
7201	9322 189 60668	IC SM LP2995M (NSC0) R
7211	9322 217 19671	IC SM EDD2516AKTA-6B-E(ELPI) Y
7231	9322 217 19671	IC SM EDD2516AKTA-6B-E(ELPI) Y
7292	9352 190 20118	IC SM 74LVC573APW (PHSE) R
7293	9352 190 20118	IC SM 74LVC573APW (PHSE) R
7301	9322 182 23671	IC SM TSB41AB1PHP (TI00) Y
7401	9322 226 17671	IC SM L2146PFP (LLC0) Y
7515	9322 204 78668	IC SM LD29150DT25 (ST00) R
7521	9322 202 34668	IC SM L5973D (ST00) R
7595	9322 165 15685	IC SM NCP303LSN30 (ONSE) R

PCBAS DVDR3350H DIGI BOARD LA (DVDR3350H/55 ONLY)**MISCELLANEOUS**

1101	2422 543 01502	RES XTL 13MHZ5 16P AT-49 A
1351	2422 543 01503	RES XTL 24MHZ576 20P AT-49 A
1461	4822 242 71861	KD6100FCA (14, 31818MHZ)
1522	2422 025 19067	CON V 24P F 1.00 FFC 0.3 Y
1536	2422 025 18009	CON BM V 22P F 1.00 FFC 0.3 Y
1551	2422 025 18873	CON V 20P F 1.00 FFC 0.3 Y
1571	2422 025 17682	CON BM V 40P M 2.54 440094 B
1671	2422 025 17682	CON BM V 40P M 2.54 440094 B

RESISTORS

3171	4822 117 13573	NETW 4 X 47R 5% MNR14
3172	4822 117 13573	NETW 4 X 47R 5% MNR14
3173	4822 117 13573	NETW 4 X 47R 5% MNR14
3174	4822 117 13573	NETW 4 X 47R 5% MNR14
3175	4822 117 13573	NETW 4 X 47R 5% MNR14
3176	4822 117 13573	NETW 4 X 47R 5% MNR14
3177	4822 117 13573	NETW 4 X 47R 5% MNR14
3178	4822 117 13573	NETW 4 X 47R 5% MNR14
3181	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3182	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3183	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3184	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3185	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3186	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3187	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3188	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3251	4822 117 13573	NETW 4 X 47R 5% MNR14
3253	4822 117 13573	NETW 4 X 47R 5% MNR14
3255	4822 117 13573	NETW 4 X 47R 5% MNR14
3257	4822 117 13573	NETW 4 X 47R 5% MNR14
3259	4822 117 13573	NETW 4 X 47R 5% MNR14
3261	4822 117 13573	NETW 4 X 47R 5% MNR14
3263	4822 117 13573	NETW 4 X 47R 5% MNR14
3265	4822 117 13573	NETW 4 X 47R 5% MNR14
3267	4822 117 13573	NETW 4 X 47R 5% MNR14
3269	4822 117 13573	NETW 4 X 47R 5% MNR14
3271	4822 117 13573	NETW 4 X 47R 5% MNR14
3273	4822 117 13573	NETW 4 X 47R 5% MNR14
3275	4822 117 13573	NETW 4 X 47R 5% MNR14
3277	4822 117 13573	NETW 4 X 47R 5% MNR14
3281	4822 117 13573	NETW 4 X 47R 5% MNR14
3488	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3492	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3573	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3574	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3575	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3576	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3579	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3584	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3673	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3674	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3675	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3676	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3679	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3684	3198 031 13390	RST NETW 1206 4X 33R PM5 COL

COILS & FILTERS

5121	4822 157 11717	BLM31P500SPT
5135	4822 157 11499	BLM11P600SPT
5141	4822 157 11717	BLM31P500SPT
5151	4822 157 11717	BLM31P500SPT
5165	4822 157 11499	BLM11P600SPT
5166	4822 157 11499	BLM11P600SPT
5171	4822 157 11499	BLM11P600SPT
5181	4822 157 11499	BLM11P600SPT
5201	4822 157 11717	BLM31P500SPT
5291	4822 157 11499	BLM11P600SPT
5301	4822 157 11499	BLM11P600SPT
5401	4822 157 11499	BLM11P600SPT
5411	4822 157 11499	BLM11P600SPT
5421	4822 157 11499	BLM11P600SPT
5431	4822 157 11499	BLM11P600SPT
5511	4822 157 11717	BLM31P500SPT
5518	4822 157 11717	BLM31P500SPT
5521	4822 157 11717	BLM31P500SPT
5525	2422 535 94639	IND FXD LHL08 S 10U PM20

DIODES

6101	5322 130 34337	BAV99
6501	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6502	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6505	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6506	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6521	3198 010 10720	DIO REC SS24 COL R
6595	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7101	9322 219 04671	IC SM DMN-8652 B0 (LLC0) Y
7111	9340 425 20115	TRA SIG SM BC847BS (PHSE) R
7201	9322 189 60668	IC SM LP2995M (NSC0) R
7211	9322 217 19671	IC SM EDD2516AKTA-6B-E(ELPI) Y
7231	9322 217 19671	IC SM EDD2516AKTA-6B-E(ELPI) Y
7292	9352 190 20118	IC SM 74LVC573APW (PHSE) R
7293	9352 190 20118	IC SM 74LVC573APW (PHSE) R
7301	9322 182 23671	IC SM TSB41AB1PHP (TI00) Y
7401	9322 226 17671	IC SM L2146PFP (LLC0) Y
7515	9322 204 78668	IC SM LD29150DT25 (ST00) R
7521	9322 202 34668	IC SM L5973D (ST00) R
7595	9322 165 15685	IC SM NCP303LSN30 (ONSE) R

PCBAS DVDR3350H DIGI BOARD/96 (DVDR3360H/96 & DVDR3370H/96 ONLY)**MISCELLANEOUS**

1101	2422 543 01502	RES XTL 13MHZ5 16P AT-49 A
1351	2422 543 01503	RES XTL 24MHZ576 20P AT-49 A
1461	4822 242 71861	KD6100FCA (14, 31818MHZ)
1522	2422 025 19067	CON V 24P F 1.00 FFC 0.3 Y
1536	2422 025 18009	CON BM V 22P F 1.00 FFC 0.3 Y
1551	2422 025 18873	CON V 20P F 1.00 FFC 0.3 Y
1571	2422 025 17682	CON BM V 40P M 2.54 440094 B
1671	2422 025 17682	CON BM V 40P M 2.54 440094 B

RESISTORS

3171	4822 117 13573	NETW 4 X 47R 5% MNR14
3172	4822 117 13573	NETW 4 X 47R 5% MNR14
3173	4822 117 13573	NETW 4 X 47R 5% MNR14
3174	4822 117 13573	NETW 4 X 47R 5% MNR14
3175	4822 117 13573	NETW 4 X 47R 5% MNR14
3176	4822 117 13573	NETW 4 X 47R 5% MNR14
3177	4822 117 13573	NETW 4 X 47R 5% MNR14
3178	4822 117 13573	NETW 4 X 47R 5% MNR14
3181	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3182	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3183	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3184	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3185	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3186	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3187	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3188	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3251	4822 117 13573	NETW 4 X 47R 5% MNR14
3253	4822 117 13573	NETW 4 X 47R 5% MNR14
3255	4822 117 13573	NETW 4 X 47R 5% MNR14
3257	4822 117 13573	NETW 4 X 47R 5% MNR14
3259	4822 117 13573	NETW 4 X 47R 5% MNR14
3261	4822 117 13573	NETW 4 X 47R 5% MNR14
3263	4822 117 13573	NETW 4 X 47R 5% MNR14
3265	4822 117 13573	NETW 4 X 47R 5% MNR14
3267	4822 117 13573	NETW 4 X 47R 5% MNR14
3269	4822 117 13573	NETW 4 X 47R 5% MNR14
3271	4822 117 13573	NETW 4 X 47R 5% MNR14
3273	4822 117 13573	NETW 4 X 47R 5% MNR14
3275	4822 117 13573	NETW 4 X 47R 5% MNR14
3277	4822 117 13573	NETW 4 X 47R 5% MNR14
3281	4822 117 13573	NETW 4 X 47R 5% MNR14
3488	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3492	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3573	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3574	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3575	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3576	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3579	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3584	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3673	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3674	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3675	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3676	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3679	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3684	3198 031 13390	RST NETW 1206 4X 33R PM5 COL

COILS & FILTERS

5121	4822 157 11717	BLM31P500SPT
5135	4822 157 11499	BLM11P600SPT
5141	4822 157 11717	BLM31P500SPT
5151	4822 157 11717	BLM31P500SPT
5165	4822 157 11499	BLM11P600SPT
5166	4822 157 11499	BLM11P600SPT
5171	4822 157 11499	BLM11P600SPT
5181	4822 157 11499	BLM11P600SPT
5201	4822 157 11717	BLM31P500SPT
5291	4822 157 11499	BLM11P600SPT
5301	4822 157 11499	BLM11P600SPT
5401	4822 157 11499	BLM11P600SPT
5411	4822 157 11499	BLM11P600SPT
5421	4822 157 11499	BLM11P600SPT
5431	4822 157 11499	BLM11P600SPT
5511	4822 157 11717	BLM31P500SPT
5518	4822 157 11717	BLM31P500SPT
5521	4822 157 11717	BLM31P500SPT
5525	2422 535 94639	IND FXD LHL08 S 10U PM20

DIODES

6101	5322 130 34337	BAV99
6501	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6502	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6505	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6506	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6521	3198 010 10720	DIO REC SS24 COL R
6595	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7101	9322 219 04671	IC SM DMN-8652 B0 (LLC0) Y
7111	9340 425 20115	TRA SIG SM BC847BS (PHSE) R
7201	9322 189 60668	IC SM LP2995M (NSC0) R
7211	9322 217 19671	IC SM EDD2516AKTA-6B-E(ELPI) Y
7231	9322 217 19671	IC SM EDD2516AKTA-6B-E(ELPI) Y
7292	9352 190 20118	IC SM 74LVC573APW (PHSE) R
7293	9352 190 20118	IC SM 74LVC573APW (PHSE) R
7301	9322 182 23671	IC SM TSB41AB1PHP (TI00) Y
7401	9322 226 17671	IC SM L2146PFP (LLC0) Y
7515	9322 204 78668	IC SM LD29150DT25 (ST00) R
7521	9322 202 34668	IC SM L5973D (ST00) R
7595	9322 165 15685	IC SM NCP303LSN30 (ONSE) R

PCBAS DVDR3350H DIGI BOARD AP (DVDR3360H/75/97 & DVDR3370H/75/97 ONLY)**MISCELLANEOUS**

1101	2422 543 01502	RES XTL 13MHZ5 16P AT-49 A
1351	2422 543 01503	RES XTL 24MHZ576 20P AT-49 A
1461	4822 242 71861	KD6100FCA (14, 31818MHZ)
1522	2422 025 19067	CON V 24P F 1.00 FFC 0.3 Y
1536	2422 025 18009	CON BM V 22P F 1.00 FFC 0.3 Y
1551	2422 025 18873	CON V 20P F 1.00 FFC 0.3 Y
1571	2422 025 17682	CON BM V 40P M 2.54 440094 B
1671	2422 025 17682	CON BM V 40P M 2.54 440094 B

RESISTORS

3171	4822 117 13573	NETW 4 X 47R 5% MNR14
3172	4822 117 13573	NETW 4 X 47R 5% MNR14
3173	4822 117 13573	NETW 4 X 47R 5% MNR14
3174	4822 117 13573	NETW 4 X 47R 5% MNR14
3175	4822 117 13573	NETW 4 X 47R 5% MNR14
3176	4822 117 13573	NETW 4 X 47R 5% MNR14
3177	4822 117 13573	NETW 4 X 47R 5% MNR14
3178	4822 117 13573	NETW 4 X 47R 5% MNR14
3181	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3182	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3183	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3184	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3185	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3186	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3187	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3188	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3251	4822 117 13573	NETW 4 X 47R 5% MNR14
3253	4822 117 13573	NETW 4 X 47R 5% MNR14
3255	4822 117 13573	NETW 4 X 47R 5% MNR14
3257	4822 117 13573	NETW 4 X 47R 5% MNR14
3259	4822 117 13573	NETW 4 X 47R 5% MNR14
3261	4822 117 13573	NETW 4 X 47R 5% MNR14
3263	4822 117 13573	NETW 4 X 47R 5% MNR14
3265	4822 117 13573	NETW 4 X 47R 5% MNR14
3267	4822 117 13573	NETW 4 X 47R 5% MNR14
3269	4822 117 13573	NETW 4 X 47R 5% MNR14
3271	4822 117 13573	NETW 4 X 47R 5% MNR14
3273	4822 117 13573	NETW 4 X 47R 5% MNR14
3275	4822 117 13573	NETW 4 X 47R 5% MNR14
3277	4822 117 13573	NETW 4 X 47R 5% MNR14
3281	4822 117 13573	NETW 4 X 47R 5% MNR14
3488	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3492	2350 035 10229	RST NETW SM ARV24 4X22R PM5 R
3573	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3574	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3575	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3576	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3579	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3584	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3673	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3674	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3675	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3676	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3679	3198 031 13390	RST NETW 1206 4X 33R PM5 COL
3684	3198 031 13390	RST NETW 1206 4X 33R PM5 COL

COILS & FILTERS

5121	4822 157 11717	BLM31P500SPT
5135	4822 157 11499	BLM11P600SPT
5141	4822 157 11717	BLM31P500SPT
5151	4822 157 11717	BLM31P500SPT
5165	4822 157 11499	BLM11P600SPT
5166	4822 157 11499	BLM11P600SPT
5171	4822 157 11499	BLM11P600SPT
5181	4822 157 11499	BLM11P600SPT
5201	4822 157 11717	BLM31P500SPT
5291	4822 157 11499	BLM11P600SPT
5301	4822 157 11499	BLM11P600SPT
5401	4822 157 11499	BLM11P600SPT
5411	4822 157 11499	BLM11P600SPT
5421	4822 157 11499	BLM11P600SPT
5431	4822 157 11499	BLM11P600SPT
5511	4822 157 11717	BLM31P500SPT
5518	4822 157 11717	BLM31P500SPT
5521	4822 157 11717	BLM31P500SPT
5525	2422 535 94639	IND FXD LHL08 S 10U PM20

DIODES

6101	5322 130 34337	BAV99
6501	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6502	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6505	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6506	9340 557 15115	DIO SIG SM BAT760 (PHSE) R
6521	3198 010 10720	DIO REC SS24 COL R
6595	4822 130 11397	BAS316

TRANSISTORS & INTEGRATED CIRCUITS

7101	9322 219 04671	IC SM DMN-8652 B0 (LLC0) Y
7111	9340 425 20115	TRA SIG SM BC847BS (PHSE) R
7201	9322 189 60668	IC SM LP2995M (NSC0) R
7211	9322 217 19671	IC SM EDD2516AKTA-6B-E(ELPI) Y
7231	9322 217 19671	IC SM EDD2516AKTA-6B-E(ELPI) Y
7292	9352 190 20118	IC SM 74LVC573APW (PHSE) R
7293	9352 190 20118	IC SM 74LVC573APW (PHSE) R
7301	9322 182 23671	IC SM TSB41AB1PHP (TI00) Y
7401	9322 226 17671	IC SM L2146PFP (LLC0) Y
7515	9322 204 78668	IC SM LD29150DT25 (ST00) R
7521	9322 202 34668	IC SM L5973D (ST00) R
7595	9322 165 15685	IC SM NCP303LSN30 (ONSE) R

PCBAS DVDR3350H FRONT BOARD**MISCELLANEOUS**

1100	2422 540 00014	RES CER 5MHZ CSTLS*G53 A
1101	4822 242 70938	TA252E00 (32, 768KHZ)
1201	2422 025 17899	CON V 14P F 1.00 FFC 0.3 Y
1202	2422 026 05307	CON MDIN H 4P F YKF51 B
1203	2722 171 00211	VFD HUV-08SS65T (SMGK) Y
1203 _{ALT}	2722 171 00321	VFD HUV-08SS65 (SMGK) Y
1207	4822 276 13732	SWITCH TACT PUSH
1213	4822 276 13732	SWITCH TACT PUSH
1214	4822 276 13732	SWITCH TACT PUSH
1215	4822 276 13732	SWITCH TACT PUSH
1216	4822 276 13732	SWITCH TACT PUSH
1217	4822 276 13732	SWITCH TACT PUSH
1218	2422 025 19036	SOC IEEE1394 V 4P F 0.8 CSS Y
1301	2422 026 05301	SOC CINCH V 3P FJPJ1127 B
2114	4822 124 11968	220MF +80-20% 5, 5V

COILS & FILTERS

5100	4822 157 11228	100UH LAN02TB101J PM5 A
------	----------------	-------------------------

DIODES

6100	4822 130 11416	PDZ6.8B
6101	4822 130 11397	BAS316
6102	4822 130 11397	BAS316
6103	4822 130 11397	BAS316
6104	4822 130 11397	BAS316
6105	4822 130 11397	BAS316
6106	4822 130 11397	BAS316
6107	4822 130 11397	BAS316
6108	4822 130 11397	BAS316
6109	4822 130 11397	BAS316
6110	4822 130 11397	BAS316
6111	4822 130 11397	BAS316
6112	9322 190 44676	LED VS LTL-1MHHR (LITO) A
6113	9322 190 44676	LED VS LTL-1MHHR (LITO) A
6114	9322 190 44676	LED VS LTL-1MHHR (LITO) A
6115	9322 190 55676	LED VS LTL-816TDK3 (LITO) A
6116	4822 130 11397	BAS316
6117	4822 130 80622	BAT54
6200	9322 129 41685	BZM55-C12
6201	9322 129 41685	BZM55-C12
6202	9322 129 41685	BZM55-C12
6203	9322 129 41685	BZM55-C12
6204	9322 129 41685	BZM55-C12

TRANSISTORS & INTEGRATED CIRCUITS

7100	3198 010 42310	BC847BW
7101	3198 010 42310	BC847BW
7102	4822 130 40981	BC337-25
7103	4822 130 41246	BC327-25
7104	9322 229 34671	IC SM UPD16316GB-007-8ET-A Y
7106	3198 010 42310	BC847BW
7107	9322 185 95667	IR RECEIVER TSOP4836 (VISH)L
7108	3198 010 42310	BC847BW

PCBAS DVDR3350H STANDBY BOARD

1303	4822 276 13732	SWITCH TACT PUSH
------	----------------	------------------