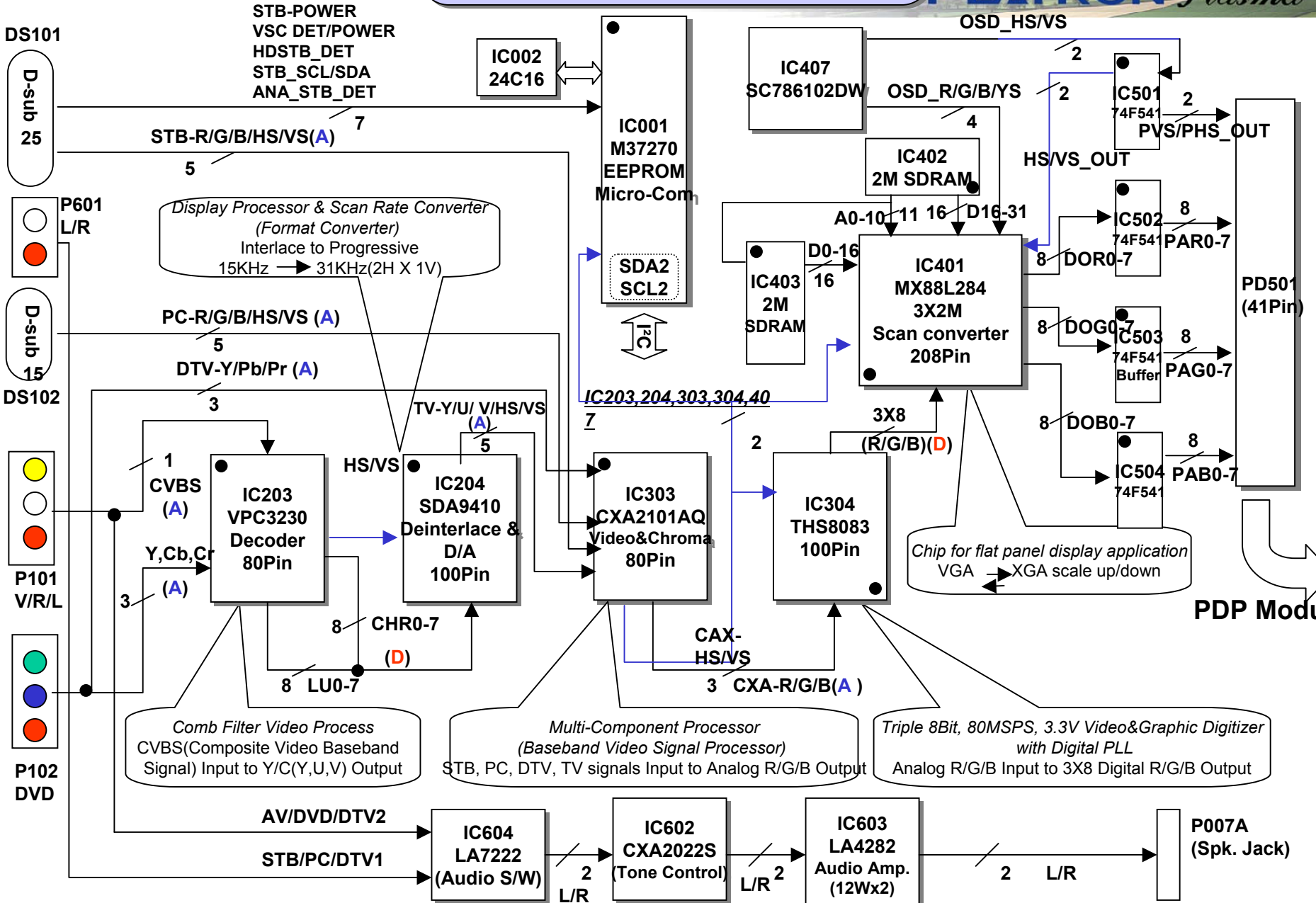


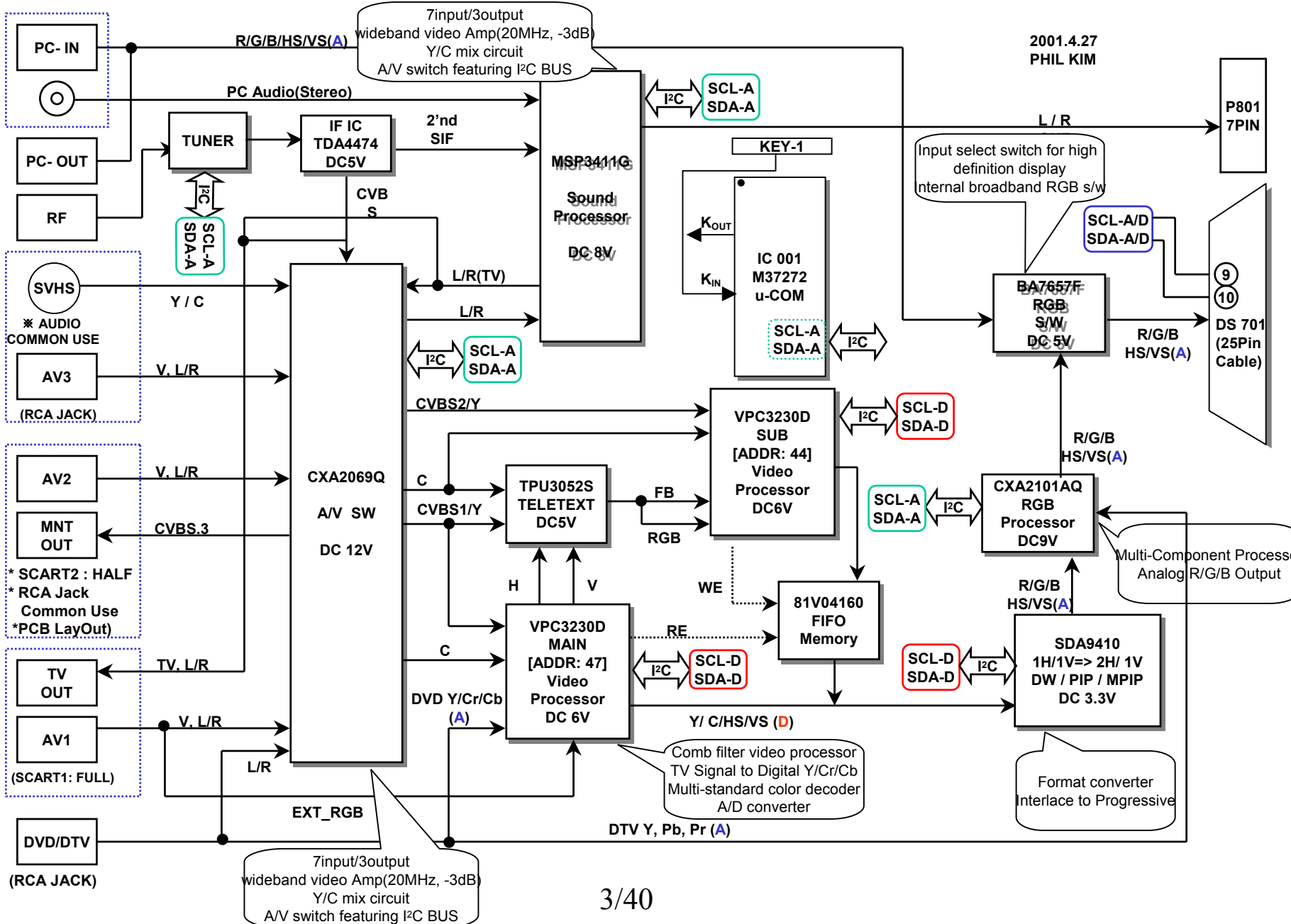
- 1. Block Diagram of VSC main**
- 2. Block Diagram of STB main**
- 3. IC SPEC**

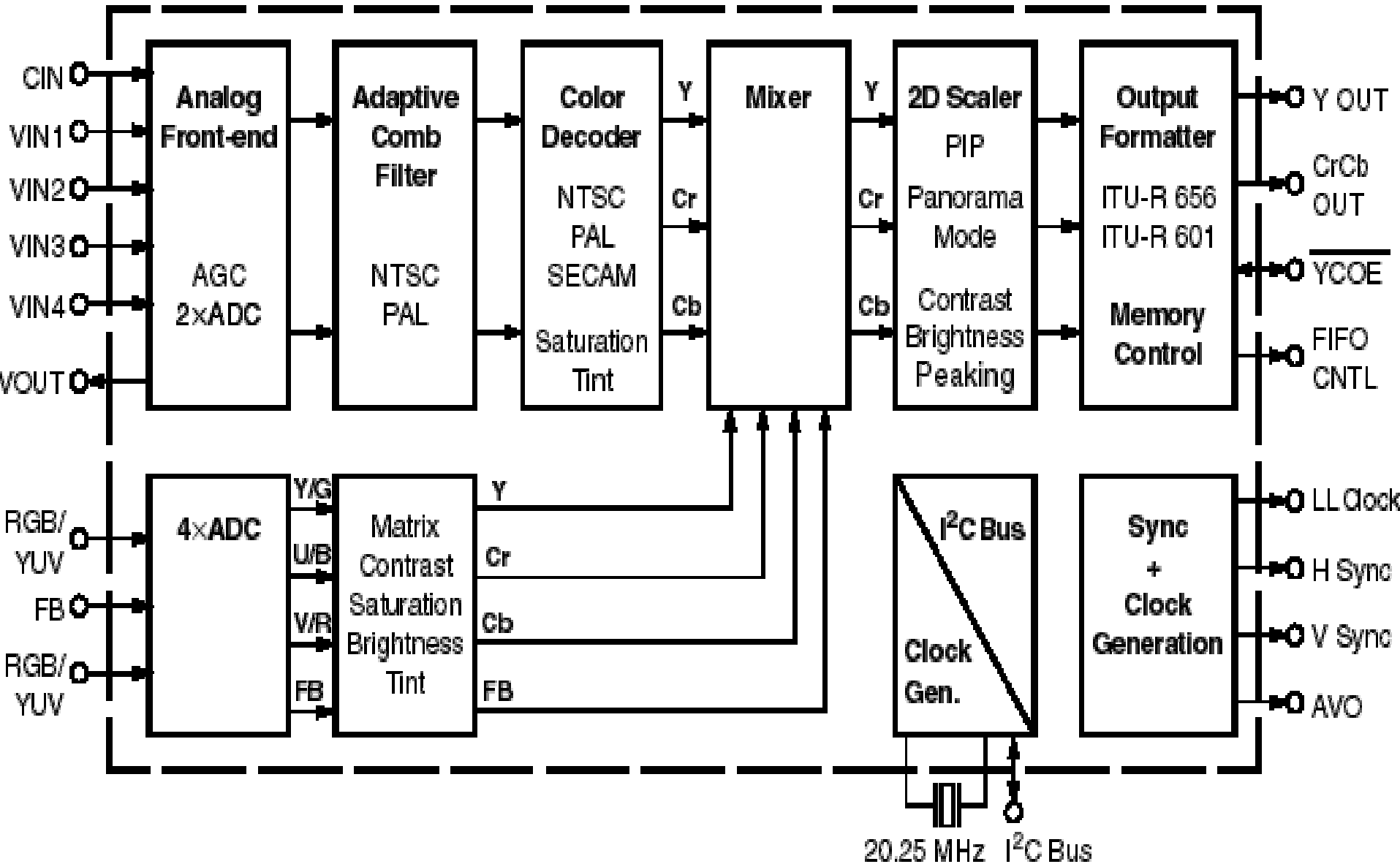


# MT-40PA10 VSC Board Block Diagram



# RT- BA10 STB Main Block Diagram





## Description

The VPC3230xD/324xD is a high quality, single-chip video front-end, which is targeted for 4:3 and 16:9, 50/60 and 100/120Hz TV sets. It can be combined with other members of the DIGIT3000 IC family (such as DDP 33x0A/B, TPU 3040) and/or it can be used with 3rd-party products.

## Features

Four CVBS, one S-VHS input, one CVBS output

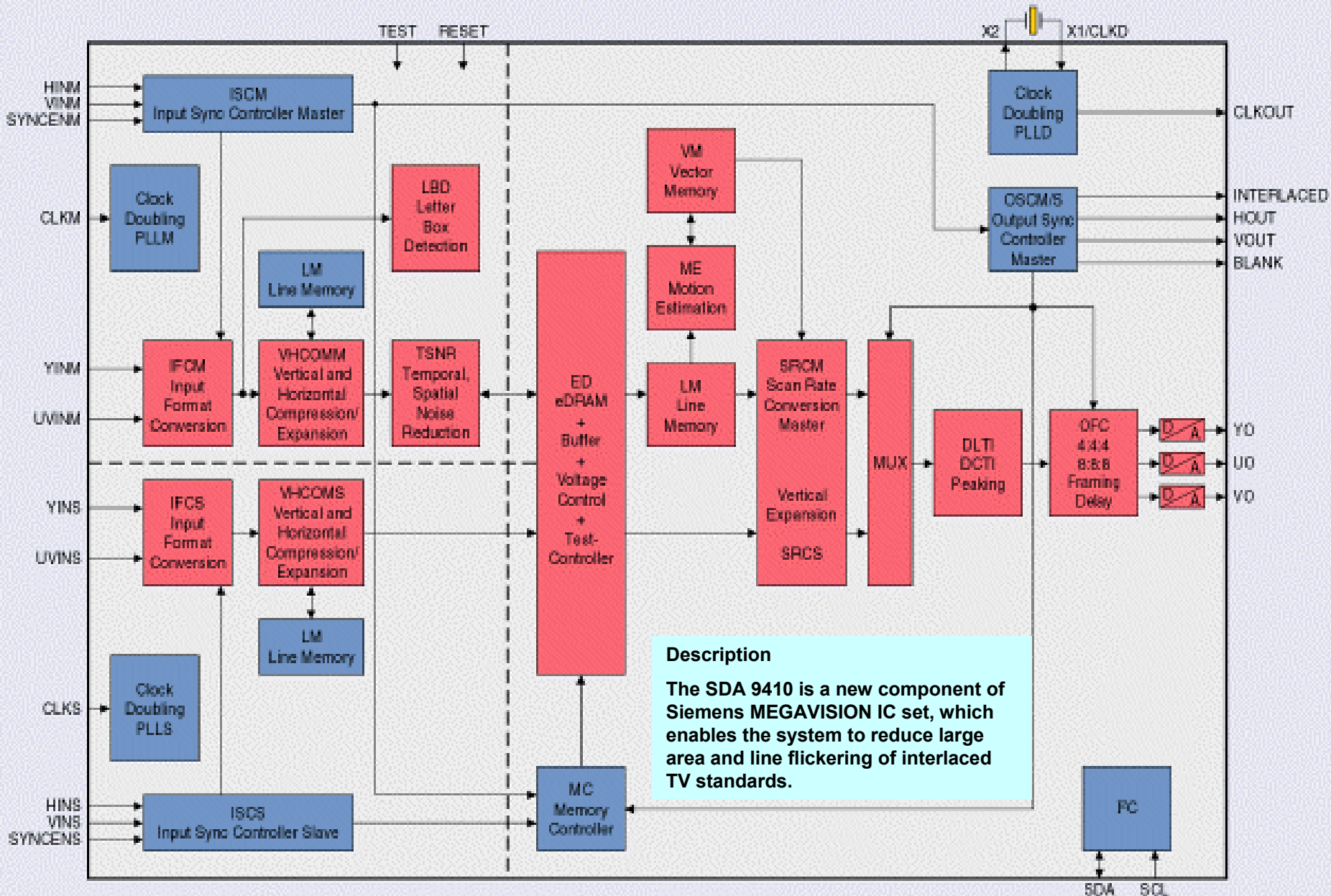
Two RGB/YCrCb component inputs, one Fast Blank(FB) input

High-performance adaptive 4H comb filter Y/C separator with adjustable vertical peaking

Multi-standard color decoder PAL/NTSC/SECAM including all substandards

One 20.25MHz crystal, few external components

6V supply voltage



**Description**

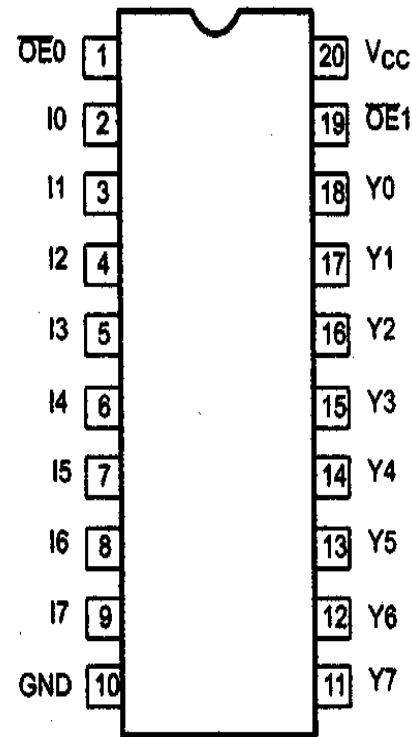
The SDA 9410 is a new component of Siemens MEGAVISION IC set, which enables the system to reduce large area and line flickering of interlaced TV standards.

## SDA9410

### Display Processor & Scan Rate Converter Features

- Digital interlaced Y/C input,  
progressive analog Y/U/V output
- High performance scan rate converter
- 4:2:2 luminance and chrominance  
parallel (2x8 wires)
- Scan rate conversion
  - Motion compensated 100/120 Hz interlaced scan conversion
  - Motion compensated 50/60 Hz progressive scan conversion
- D/A converters
  - 9 bit amplitude resolution for Y, -(R-Y), -(B-Y) output
- 3.3V + 5% supply voltage

## 74F541 3-state Buffer



### Description

The 74F541 are octal buffers that are ideal for driving bus lines or buffer memory address registers. The outputs are capable of sinking 64mA and sourcing up to 15mA, producing very good capacitive drive characteristics. The devices feature input and outputs on opposite sides of the package to facilitate printed circuit board layout.

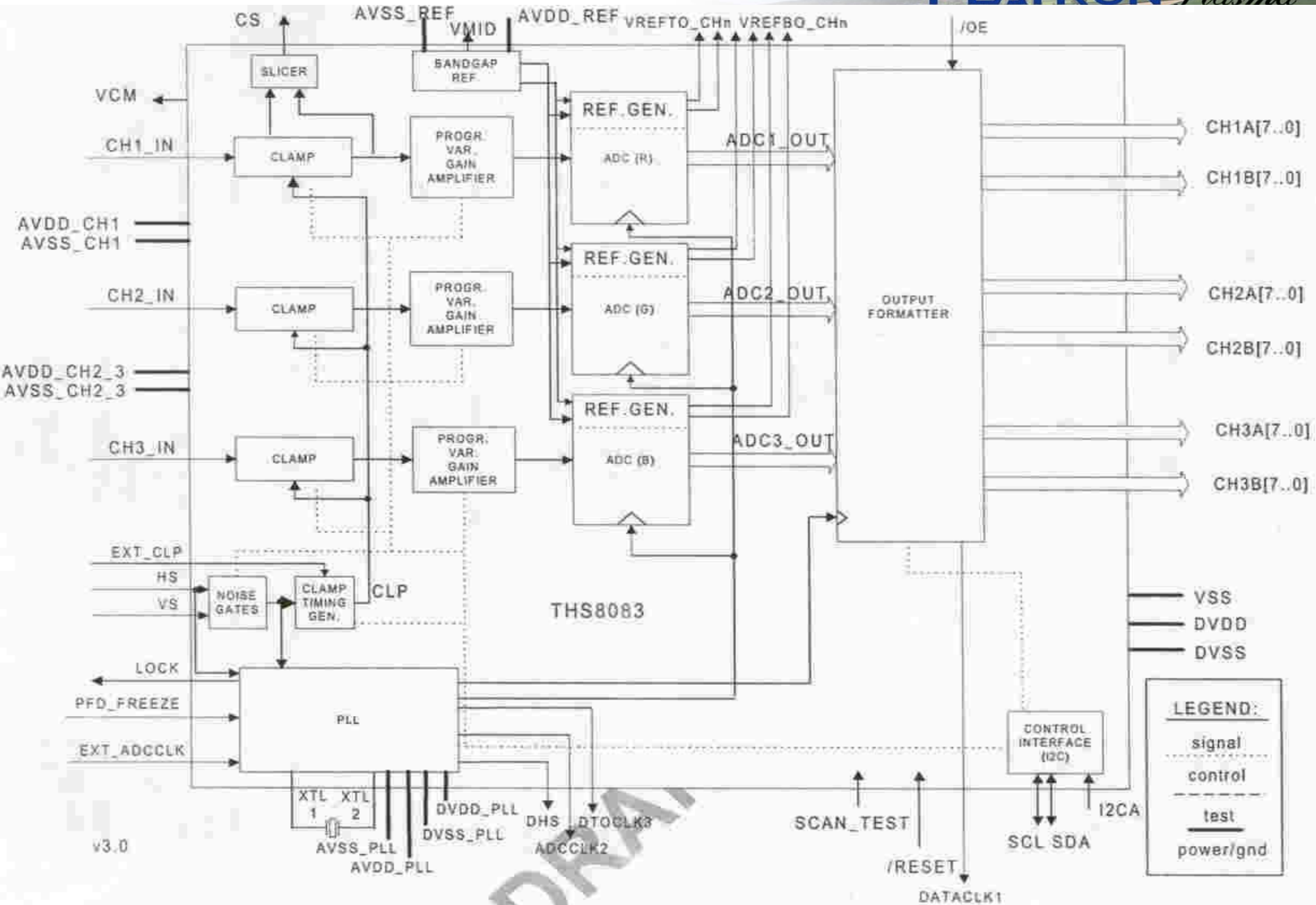
### Features

High impedance NPN base inputs for reduced loading (20uA in High and Low states)

Octal bus interface

3-state buffer outputs sink 64mA

15mA source current





## **Description**

**THS8083 is a complete solution for the digitalizing of video & graphic signals in RGB or YUV/YCbCr color spaces. The device supports pixel rates up to 80 MHz to 95 MHz, depending on the speedgrade of the device**

## **Features**

**Three digitalizing channels, each with independently controllable Clamp, PGA and ADC**

**ADC: 8 bit 80MSPS**

**Support for 4:4:2 and 4:2:2 (ITU.BT-601 style output modes to reduce board traces and video ASIC'S**

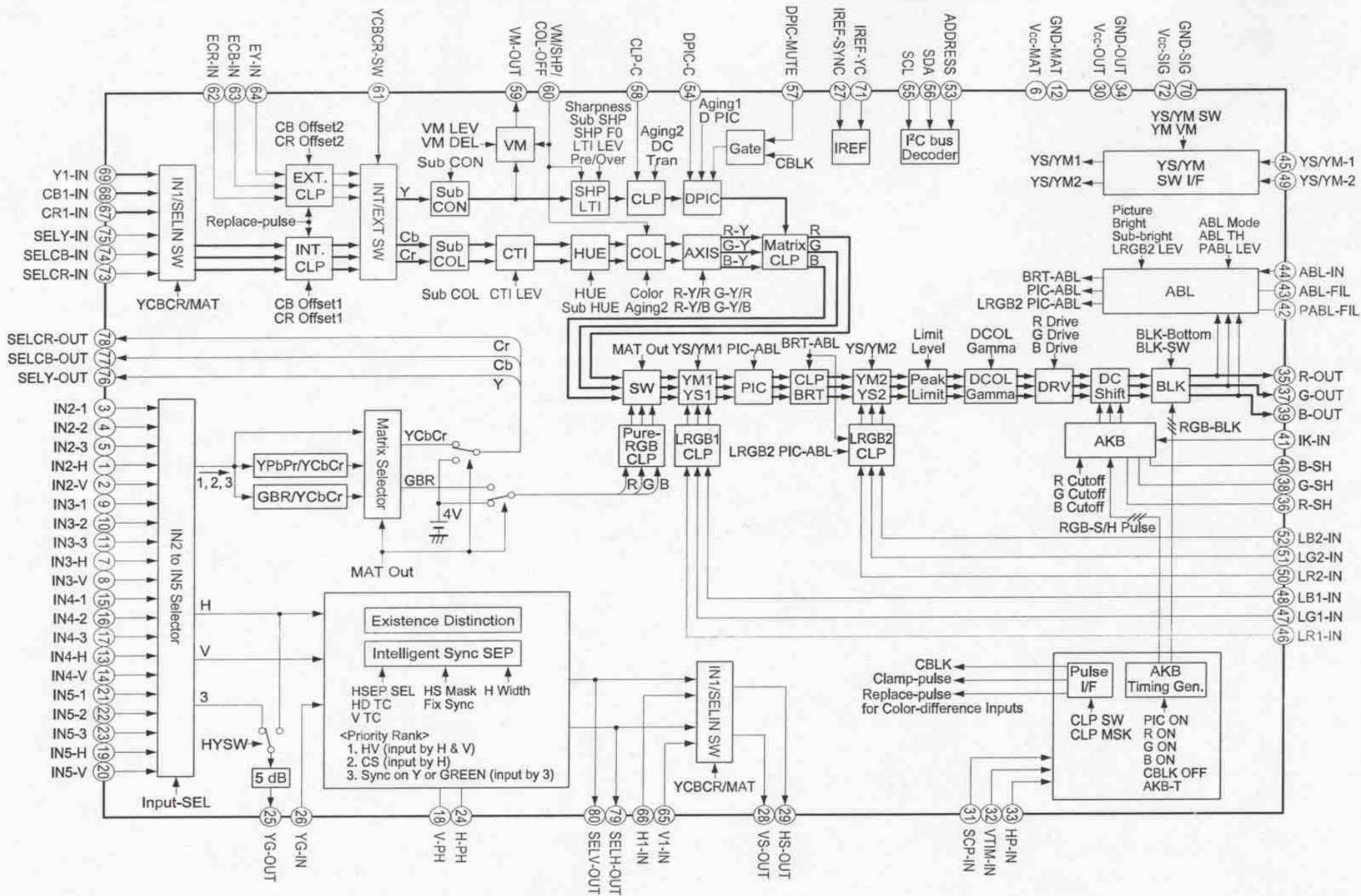
**Fully integrates digital PLL(including loop filter) for pixel clock generation**

**3.3V supply voltage**

# CXA2101AQ Multi-Component Processor

(Base Band Video Signal Processor IC)

FLATRON Plasma



## Description

The CXA2101AQ is a bipolar IC which integrates the following functions on a single chip; base band signal processing, RGB signal processing , and video switching for 4 systems (including HV sync signal processing) using Y/Cb/Cr inputs.

It was developed for multiscan TVs, and enables high-end TV systems to be configured.

## Features

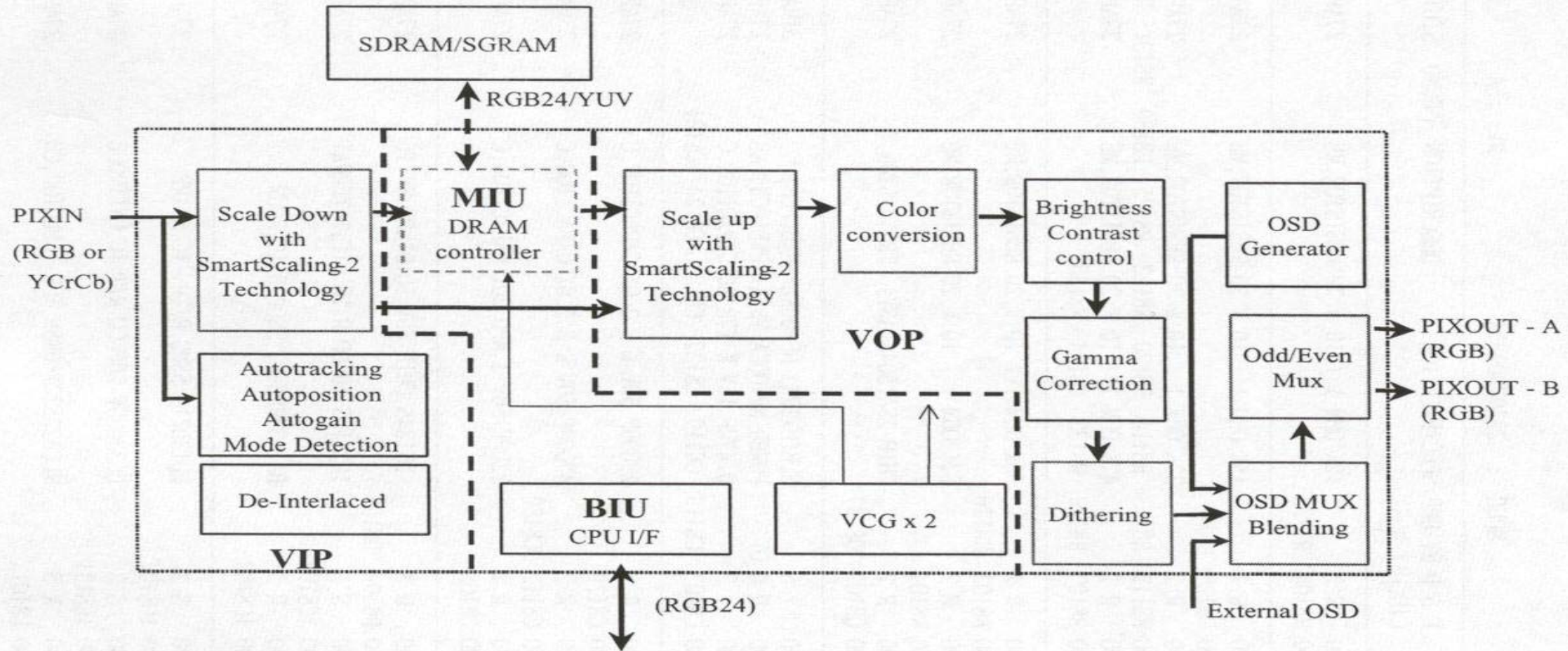
On-chip video switching for 4 systems

Y/Cb/Cr input for one system, external Y/Cb/Cr input for 1 system

Analog RGB input for 2 systems

Normal, PAL-FF, HD-TV supported

9V supply voltage



## Description

The MX88L284 is a highly integration chip for Flat Panel Display application. With Macronix's SmartsScaling – 2 filter, it provides high quality scaled video image and format conversion.

## General features

Converts NTSC/PAL and PC video signal into flat panel display device timing and resolution.

Built-in OSD generator with 64 ROM fonts, and 64 programmable RAM fonts.

Support configurable SDRAM/SGRAM(x0 x1 and x2) for different resolution to minimize the system cost.

### Input

PC Video up to 1024x768 @ 85Hz operation mode

Support YCrCb422,RGB888 mode (interlaced and Non-interlaced)

Support input H/V sync. Polarity and odd/even field detection

Support digital input capability

Support SDRAM/SGRAM x0x1 and x2 configuration

3.3V power supplier

### Output

Support following resolution and frequency

Resolution	800x600 (SD)	1024x768	1280x1024
Horizontal frequency	22~55	20~70	64
Vertical frequency (Hz)	50~75	50~75	60
Dot clock (MHz)	32.5~60	25~80	108

Single (18/24) and Dual (36/48) bit RGB data output

Support OSD MUX capability for On-Screen-Display chip input

Built-in OSD generator

### CPU Interface

Support direct 8 bit uP interface and serial bus (high-speed) interface



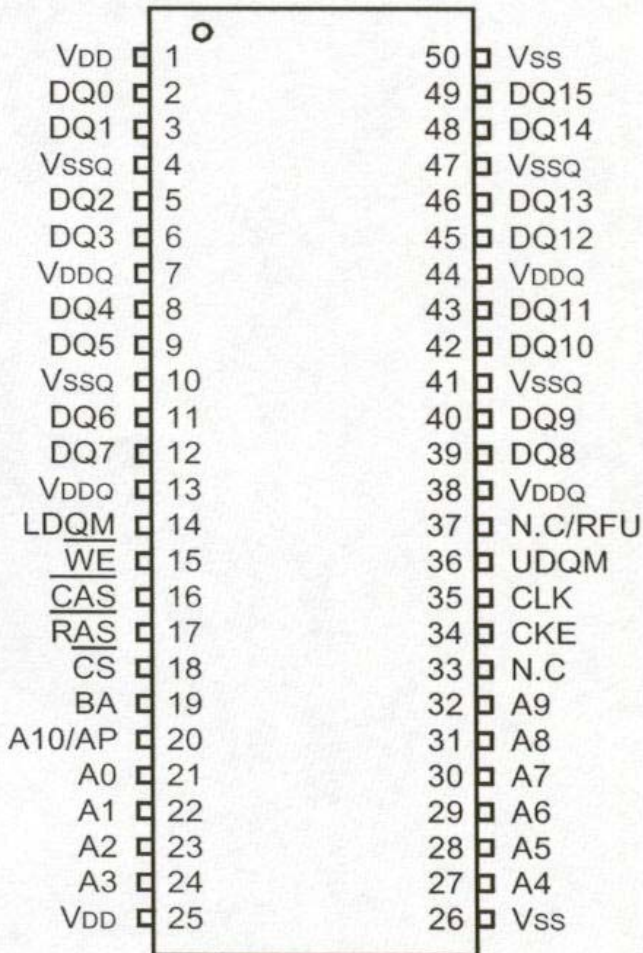
# SDRAM-KM416S1020C

## Description

The KM416S1021C is 16,777,216 bits synchronous high data rate Dynamic RAM organized as 2 x 524,288 words by 16 bits, fabricated with high performance CMOS technology. Synchronous design allows precise cycle control with the use of system clock I/O transactions are possible on every clock cycle. Range of operating frequencies, programmable burst length and programmable latencies allow the same device to be useful for a variety of high bandwidth, high performance memory system applications.

## Features

- JEDEC standard 3.3V power supply
- SSTL\_3 (Class II) compatible with multiplexed address
- Dual banks operation
- MRS cycle with address key programs
- CAS latency (2 & 3)
- Burst length (1, 2, 4, 8 & Full page)
- Burst type (Sequential & Interleave)
- All inputs are sampled at the positive going edge of the system clock.
- Burst read single-bit write operation
- Auto & self refresh
- 64ms refresh period (4K cycle)



## CXA2022

*I<sup>2</sup>C Bus Sound Processor for TV*

### Description

The CXA2022S is a bipolar IC designed as an IC bus control sound processor for TV. This IC has simulate stereo, surround, tone control, balance, volume, muting, AGC and other functions.

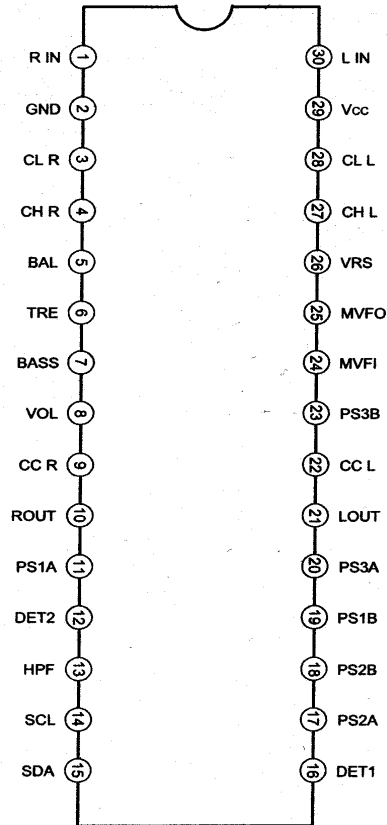
### Features

Allows control I<sup>2</sup>c bus

Employs a special surround system to prevent “vocal missing” in the surround mode

Adopts an AGC circuit to absorb the difference in sound level between input sources and improves S/N ratio of hearing characteristics

14V supply voltage



## LA4282

*2-channel 10w AF Power Amplifier  
for Use in Home Stereo, TV Applications*

### Description

The LA4282 is an IC which seals a high-output power amplifier for TVs and monitors in a compact package.

### Features

High-power 2-channel AF power amplifier

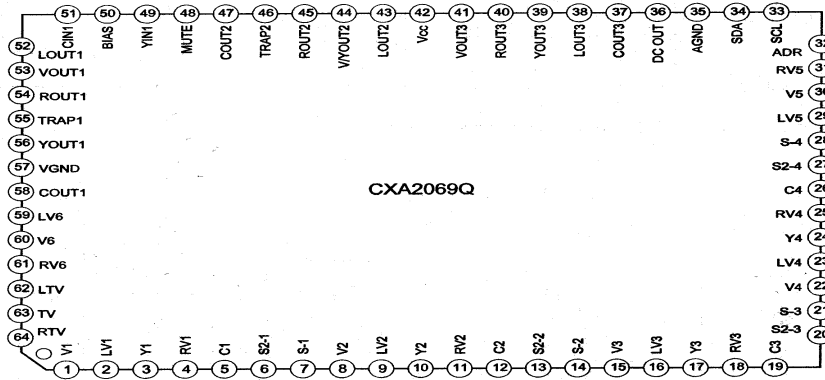
Low pop noise at the time if power supply ON/OFF

Good ripple rejection (58 db typ)

External muting available

# CXA2069

S2-Compatible 7-Input 3-Output Audio/Video Switch



## Description

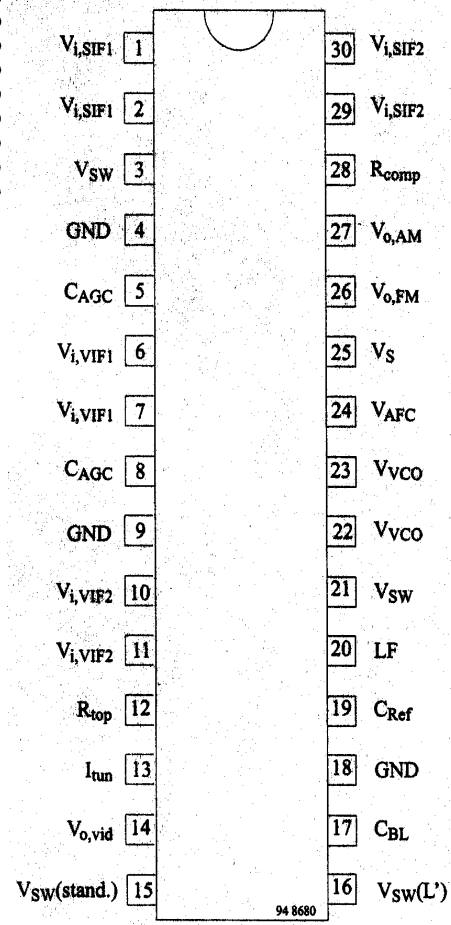
The CXA2069Q is a 7-Input 3-Output Audio/Video Switch featuring I2C bus compatibility for TVs. This IC has input pins that are compatible with S2 protocol.

## Features

- 7 inputs 3 outputs
- 4 inputs that are compatible with S2 protocol
- Wide band video amplifier (20 MHz,-3 dB)
- Y/C MIX circuit
- Serial control with I2C bus
- High impedance maintained by I<sup>2</sup>C bus lines (SDA, SCL) even when power id OFF
- 12V Supply voltage

# TDA4474

Multistandard Video-IF and Quasi Parallel Sound Processing



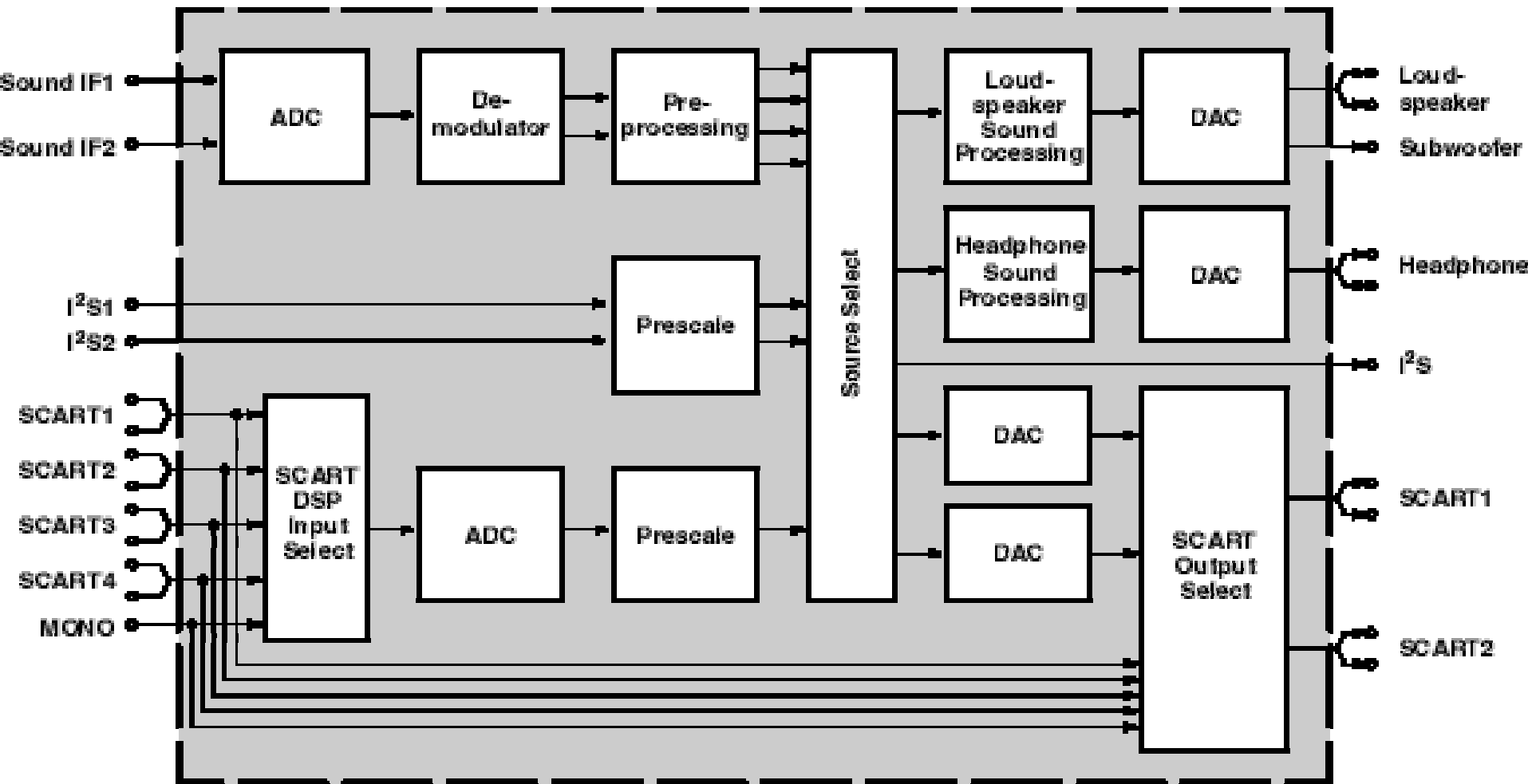
## Description

The TDA4474 is an integrated bipolar circuit for full multistandard video/sound IF(VIF/SIF) signal processing in TV/VCR and multimedia applications. The circuit processes all TV video IF signals with negative modulation (e.g. B/G standard), positive modulation(e.g. L standard) and the AM, FM/NICAM sound IF signals.

## Features

- Four IF inputs (2xVIFin and 2xSIFin)
- Very linear video demodulation, good pulse response and excellent inter modulation figures
- VIF-AGC for negative modulated signals(peak sync. detection) and for positive modulation(peak white/black level detector)
- Alignment-free quasi parallel sound(QPS) mixer for FM/NICAM sound IF signals
- 5V supply voltage; low power consumption





## Description

The MSP 34x1G family of single-chip Multistandard Sound Processors covers the sound processing of all analog TV-Standards worldwide, as well as the NICAM digital sound standards. The full TV sound processing, starting with analog sound IF signal-in, down to processed analog AF-out, is performed on a single chip.

The MSP4x1G has all functions of the MSP3401G with the addition of a virtual surround sound feature

***MSP 3411G***  
***Multistandard Sound***  
***Processor with Virtual Dolby***  
***Surround***  
**Features**

Four Stereo SCART (line) inputs,  
 one Mono input; two Stereo  
 SCART output

Complete SCART in/out  
 switching matrix

Standard Selection with single  
 I<sup>2</sup>C transmission

Two selectable sound IF (SIF)  
 inputs

Automatic Sound Selection  
 (mono/stereo/bilingual), new  
 registers MODUS, STATUS

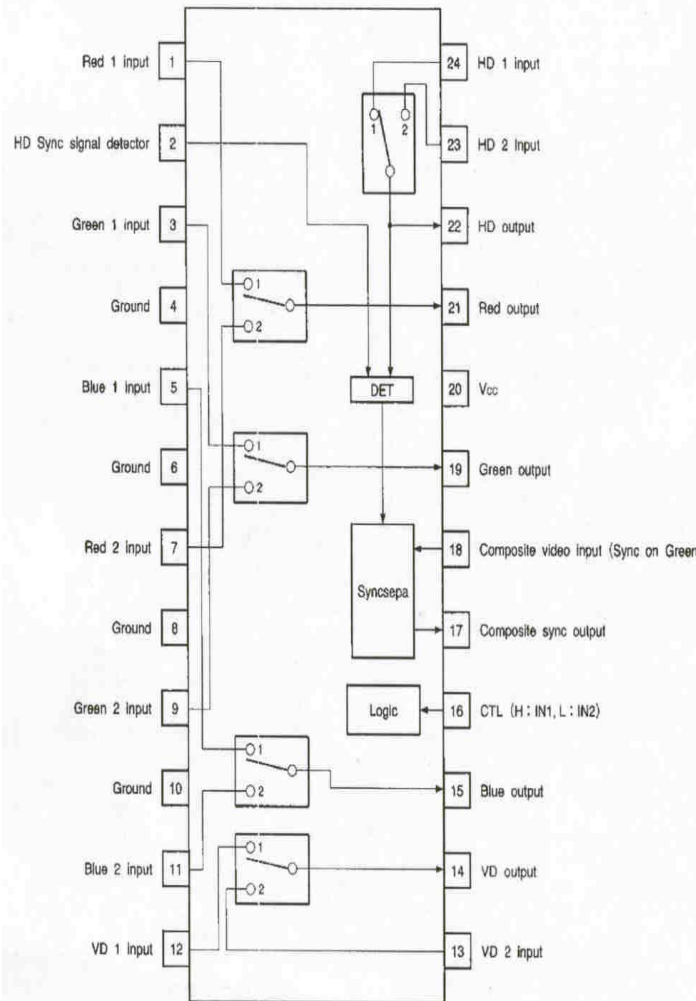
3D-panorama virtualizer  
 (approved by Dolby Laboratories)  
 with noise generator

AVC: Automatic Volume  
 Correction

Demodulation of the FM-Radio  
 multiplex signal

8V power supply

***BA7657F***  
***Input selector switch for high definition displays***



**Description**

The BA7657F is for high definition displays, and have internal switches for switching between broadband RGB signals and HD/VD signals, as well as an internal synchronization separator. These ICS simplify the designing of input units for deluxe displays

**Features**

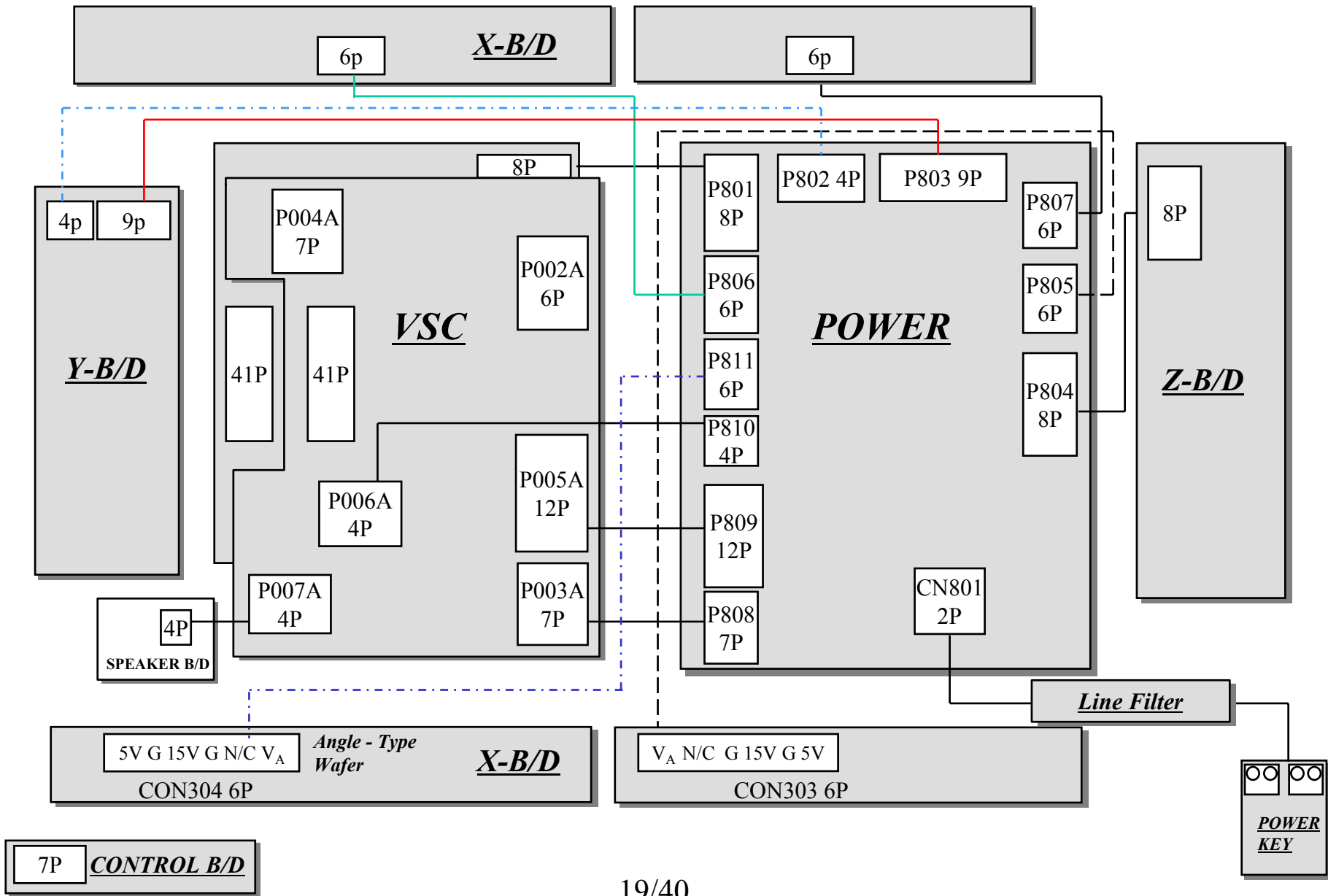
Internal broadband RGB switch  
 (frequency characteristics : 250MHz,  
 -3dB)

Internal HD/VD switch

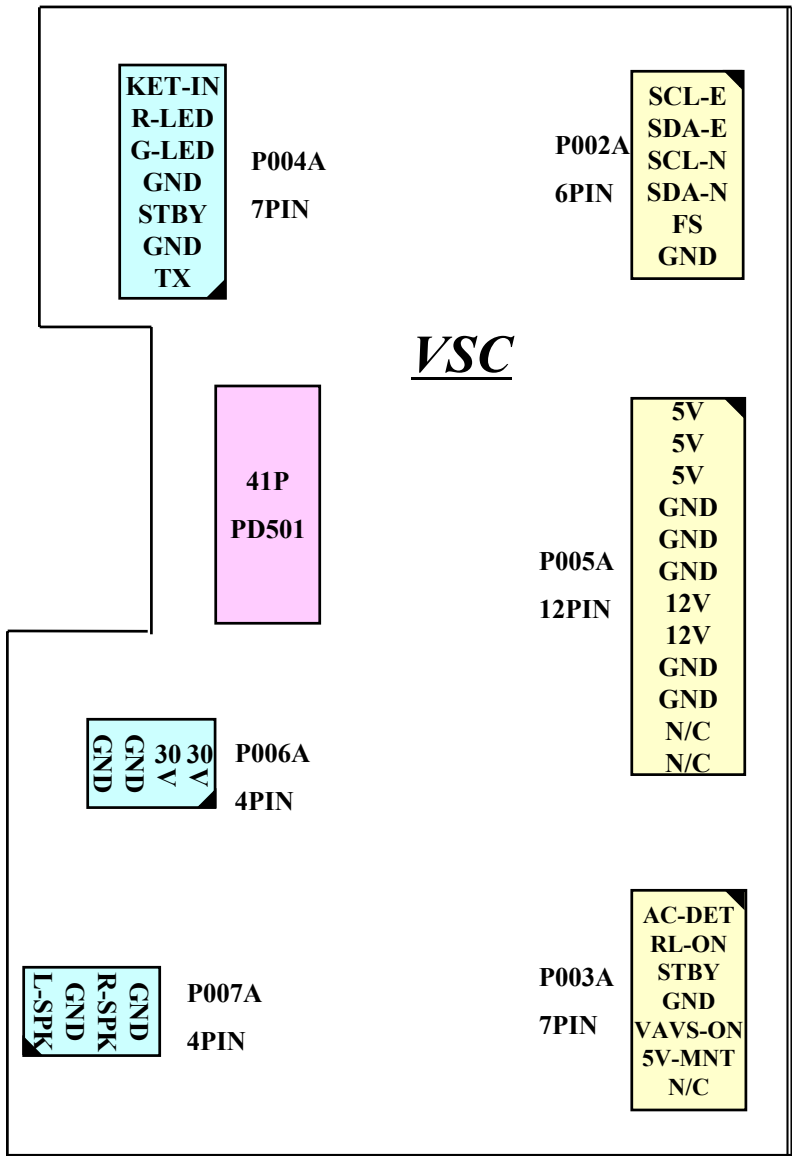
Internal synchronization separator for  
 synchronizing signals superimposed  
 onto G signals.

5V power supply

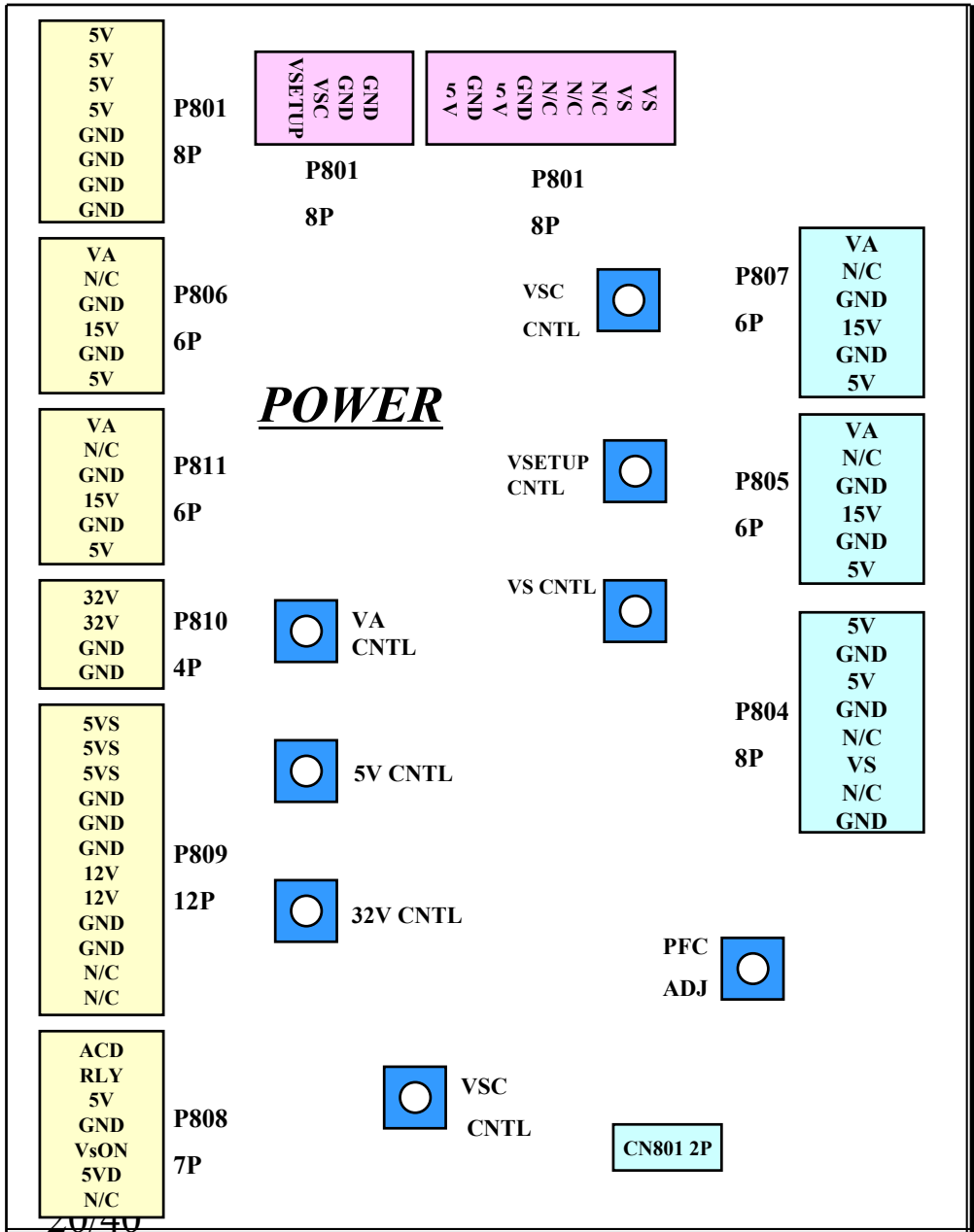
# Connection Diagram of MT-40PA10



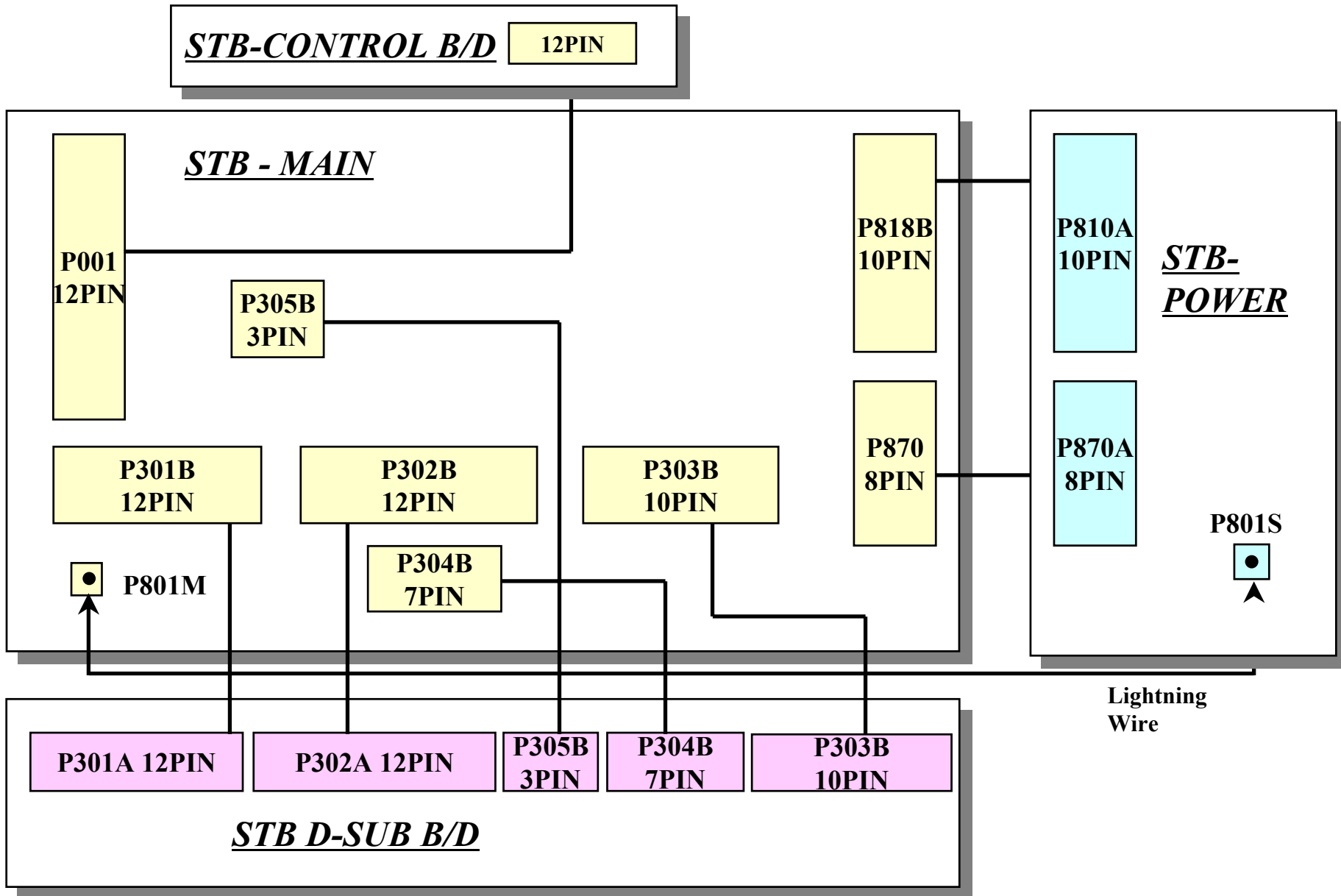
# Pin Detail of MT-40PA10



▲ : A Symbol of starting of the PIN number

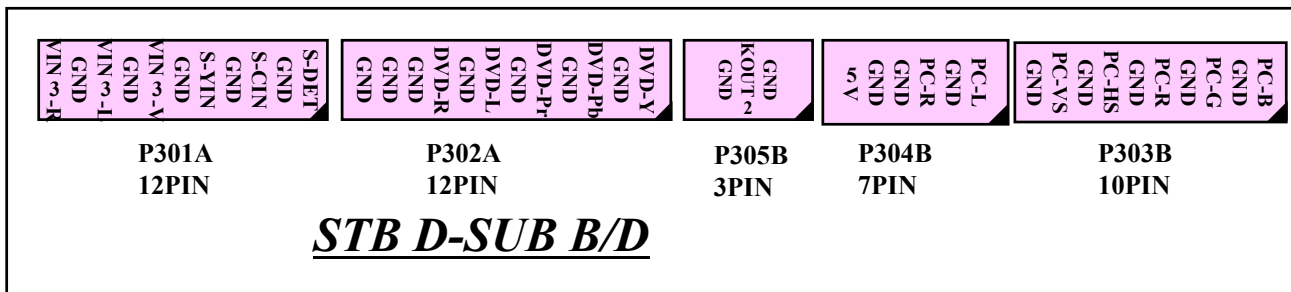
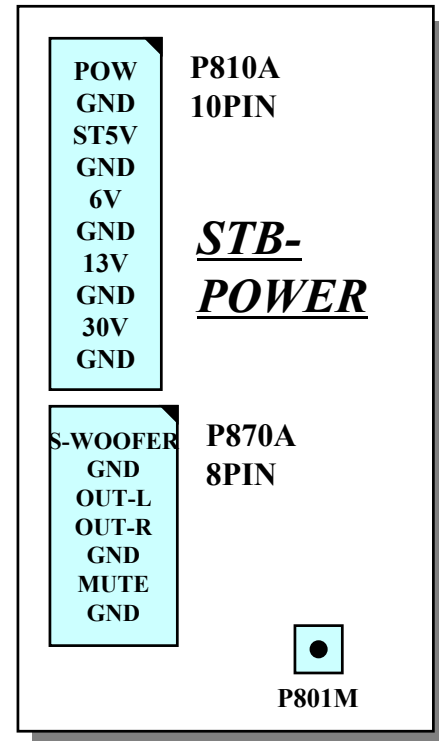
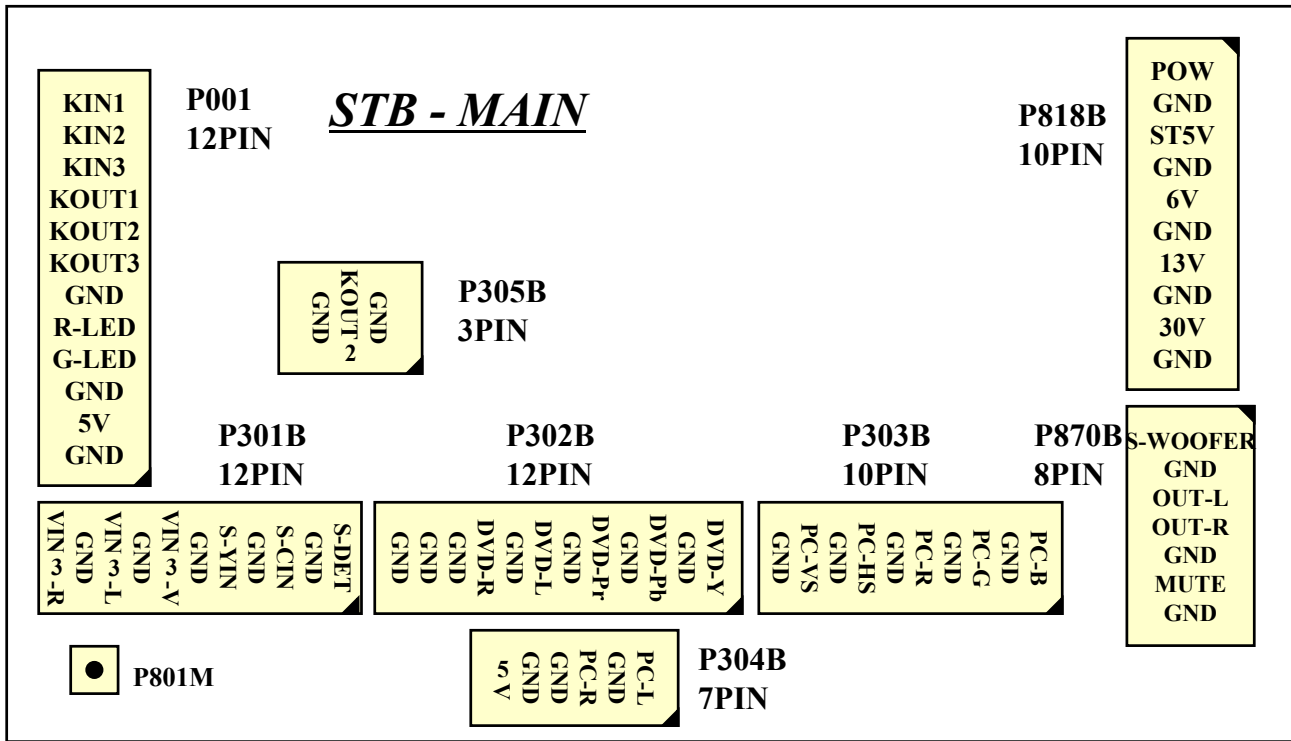


# Connection Diagram of RT-BA10



# Pin Detail of RT-BA10

## STB-CONTROL B/D 12PIN



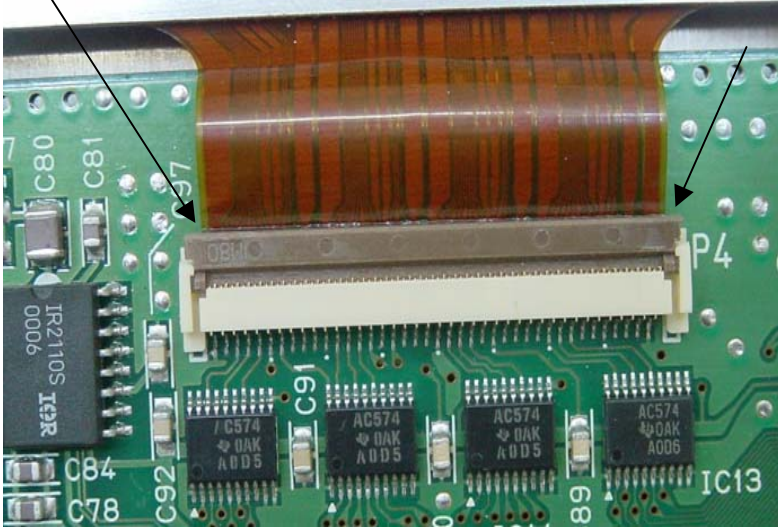
▲ : A Symbol of starting of the PIN number



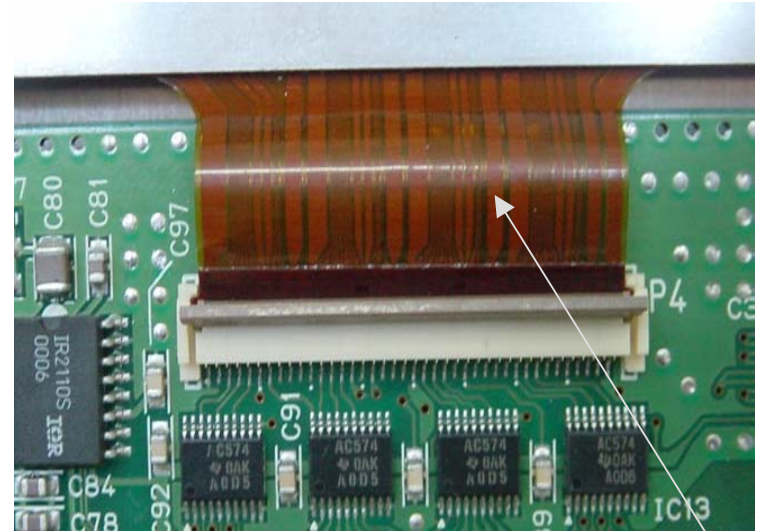
# Trouble Shooting Guide

## X - Board COF Connector separation

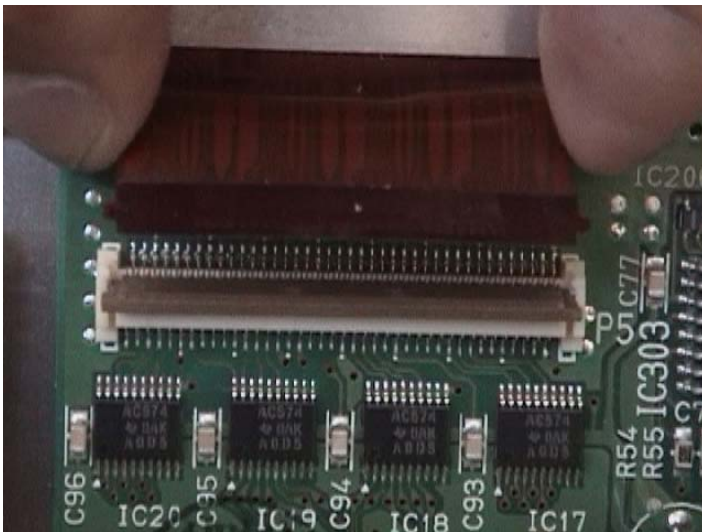
Lift up the right and left of X-BOARD CONNECTOR.



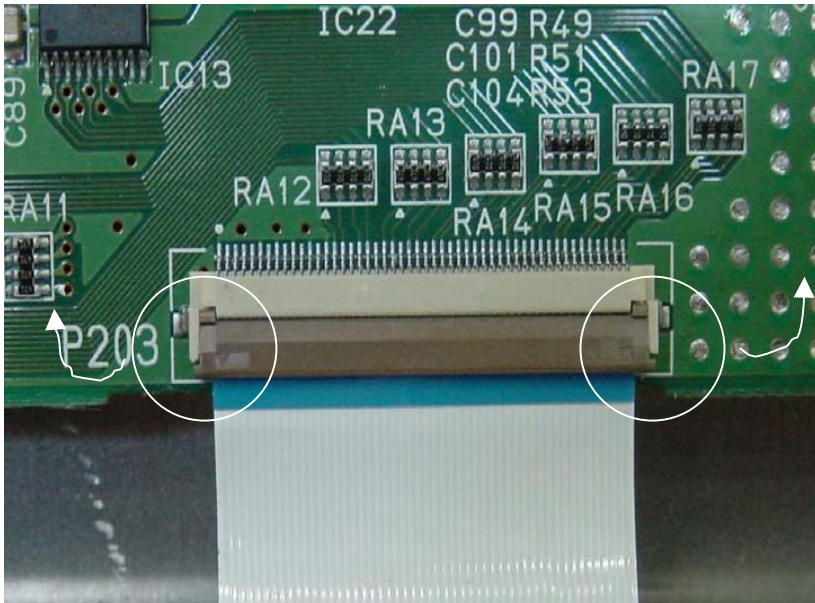
Lift up X-BOARD CONNECTOR and separate COP CONNECTOR by pulling up.



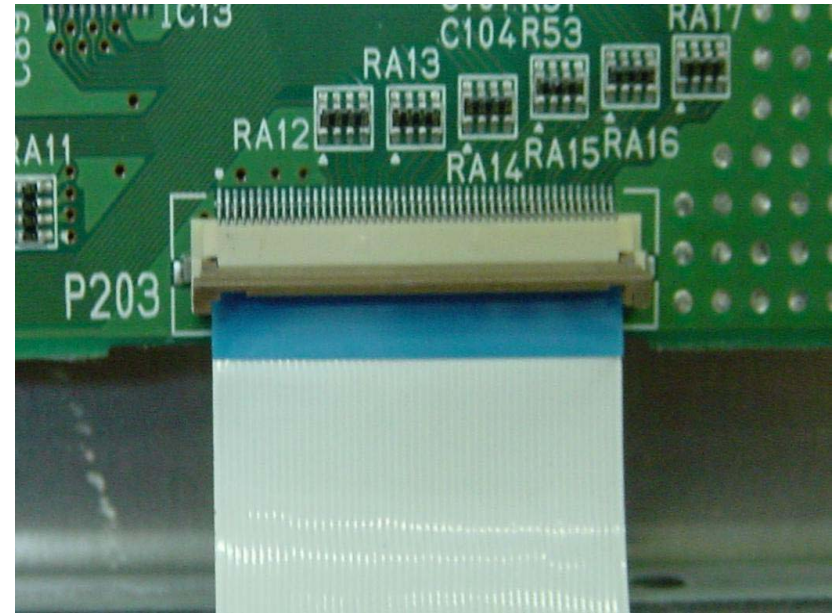
**When you handle COF CONNECTOR, don't pressure. First release LOCK and separate. COF Connector If COF CONNECTOR is damaged you should replace MODULE ASS'Y. so be aware of this!!**



**When you exchange X-Board, first you should separate COF Connector. Be careful not to damage it. COF Connector is attached to Module. Since COF Connector is torn, Module Ass'y must be replaced a new one. Be careful!!**



Lift up each edge of left/right.



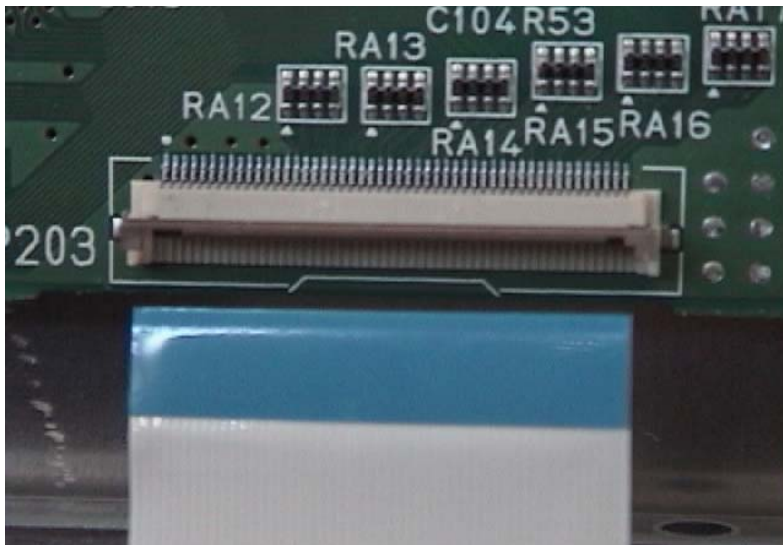
Lifted condition

Be careful to handle LOCK or it can be hurt.  
When LOCK is hurt, replace a new X-BOARD.



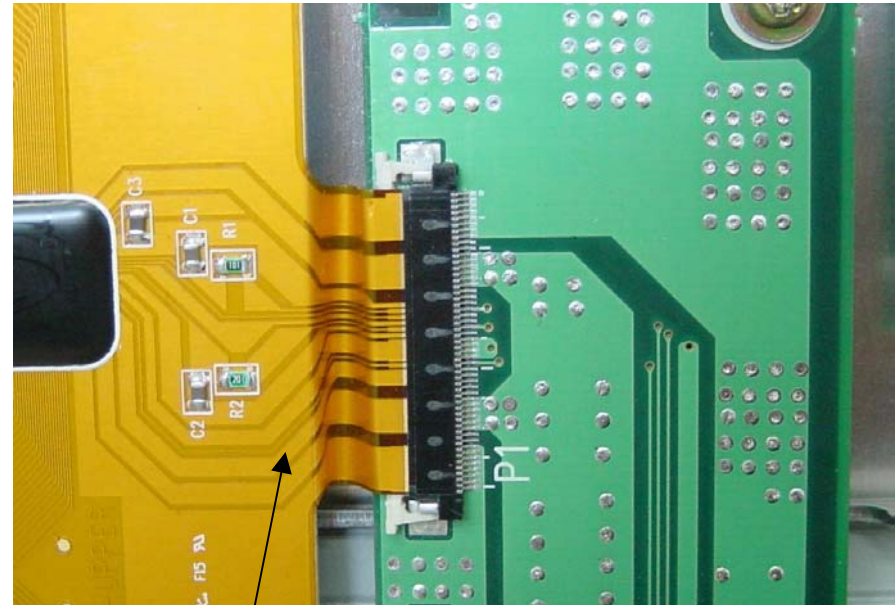
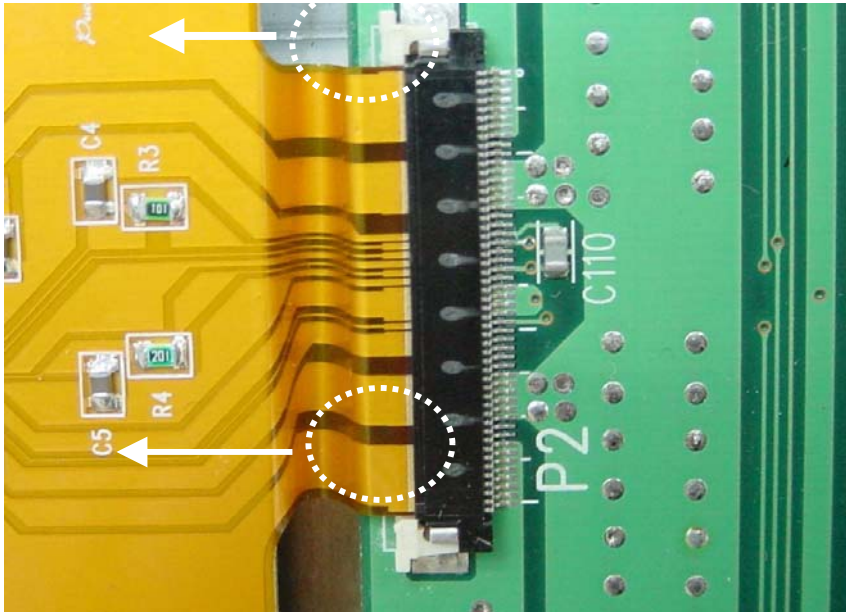
It's easy to separate it by releasing Connector Lock .

Do not pressure. Be careful to handle LOCK or it can be hurt. When LOCK is hurt, replace a new X-BOARD





**Pull the white LOCK as shown in arrow**



**Pull the white LOCK as shown in arrow.**

**Separate COF CONNECTOR by pulling in the left.**



**Be careful to handle LOCK part and COF Connector when LOCK part is damaged, you should replace a new Y-Board. In case of COF Connector, Module Ass'y**

# Z - Board COF Connector separation



Separate the fixed Screw of Z-Board..

Pull out Lock as shown in arrow.



be careful not to tear COF Connector. If COF Connector is torn, replace a new Module Ass'y.



Condition in Lock part is pulled

COF Connector



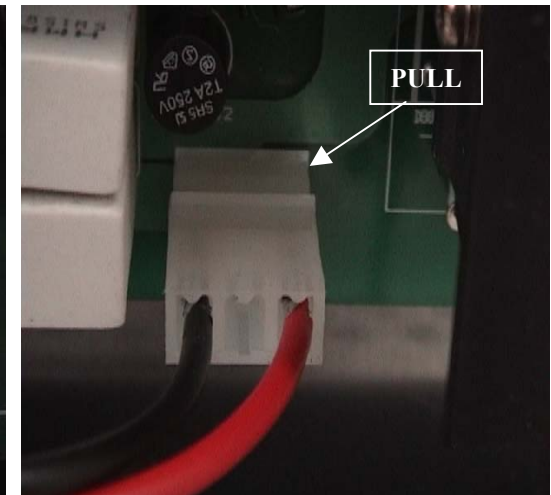
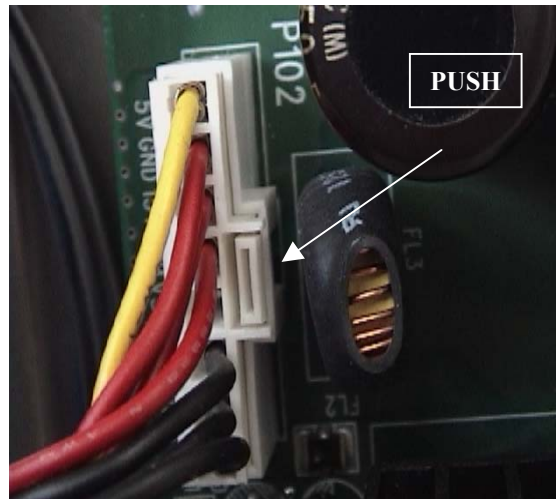
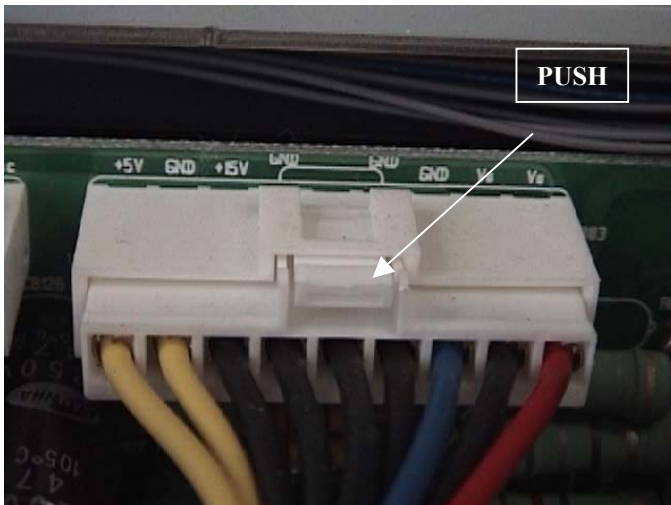
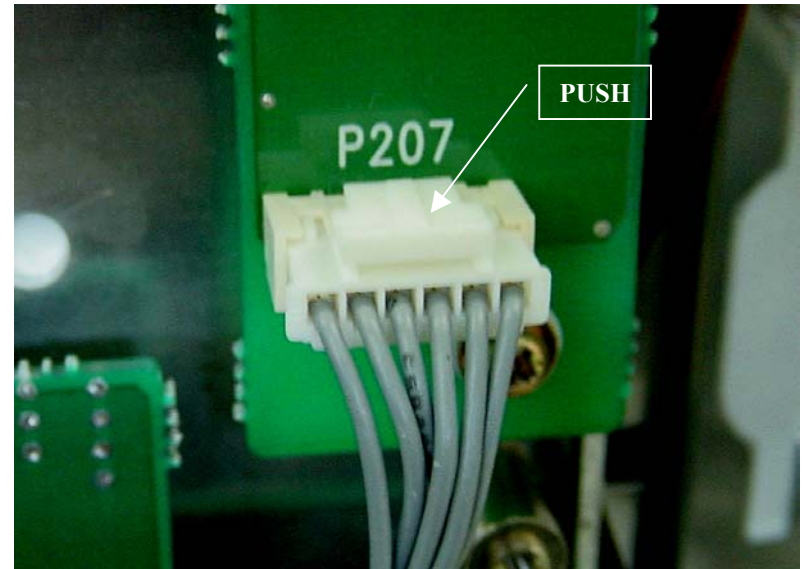
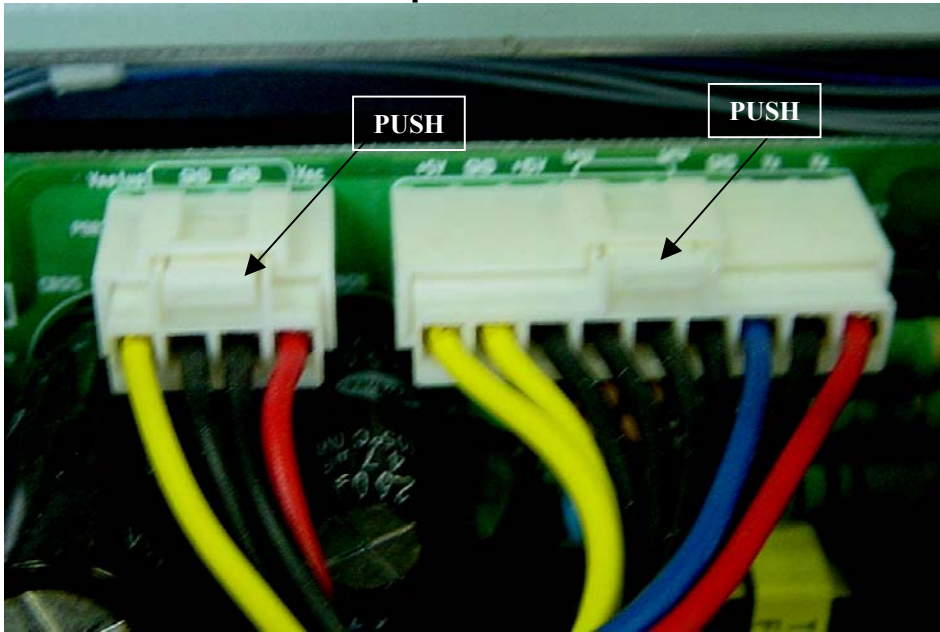
Pull COF Connector as shown in arrow.

It's easy to separate COF on condition that Z-Board Screw is separated. In case Z-Board is assembled, it's really hard to separate.

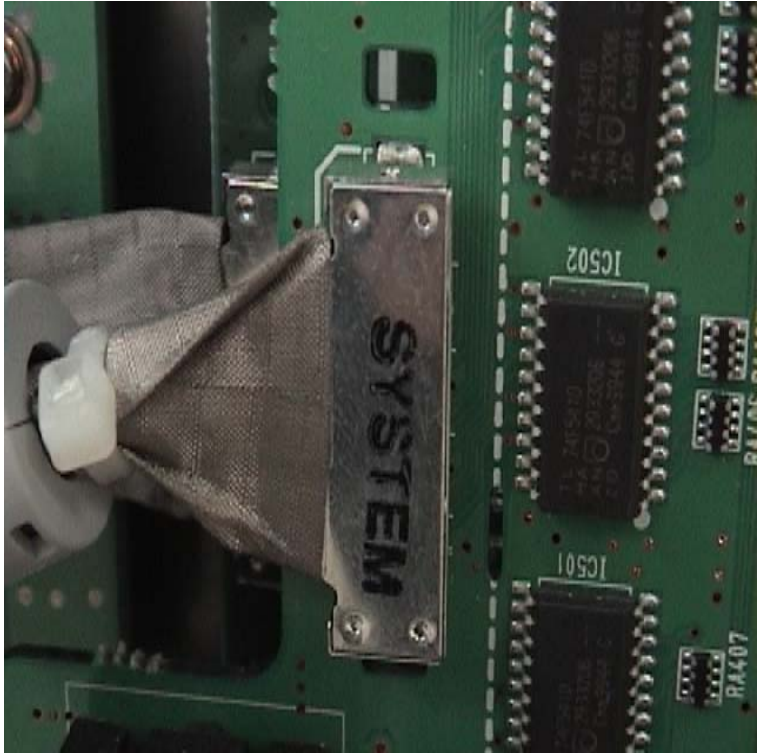


# each Connector separation

Push LOCK and pull out

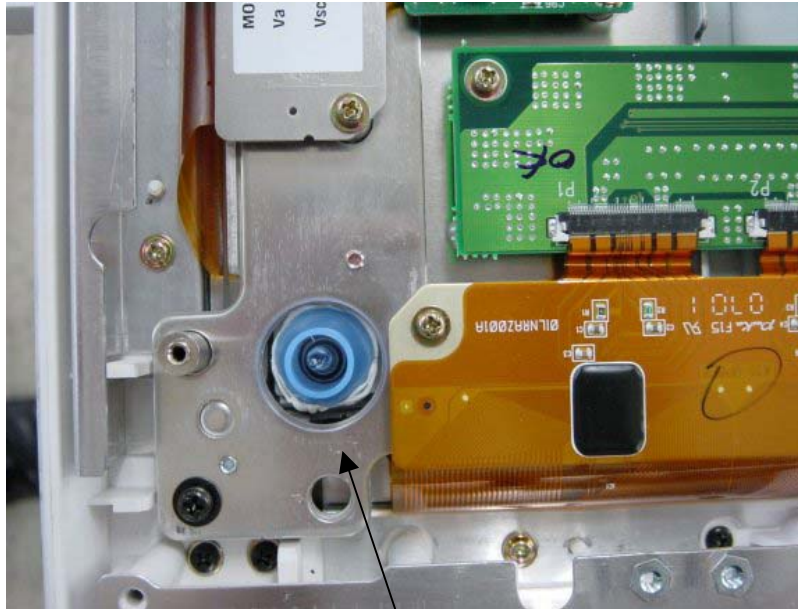


**Controller Board VSC Board Connector**

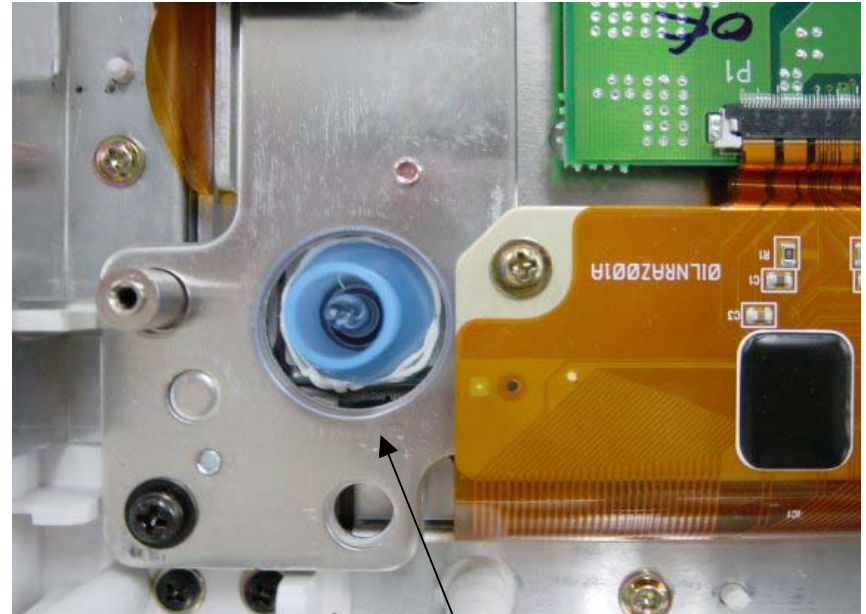




## Gas injection (sealing up) condition



Be sealed up after gas injection



Be sealed up after gas injection



**Be careful to handle the sealed-up part after gas injection.**

**If it is broken the gas escapes. So replace a module.**

# Power is on and off 2 ~ 3 minutes later ( Protect )

Power is On and off 2~3 minutes.  
(Protect)

P301 Connector Open Check.

OK

X - Board Top Right Change.

P302 Connector Open Check

OK

X - Board Top Left Change.

P303 Connector Open Check

OK

X - Board Bottom Right Change.

P304 Connector Open Check

OK

X - Board Bottom Left Change.

P102 Connector Open Check

OK

Z - Board Change.

P3, P2 Connector Open Check

OK

Y - Board Change.

P005, P003 Connector Open Check

OK

VSC- Board Change.

P006 Connector Open Check

OK

VSC - Board Change.  
Sound Output IC Short Check

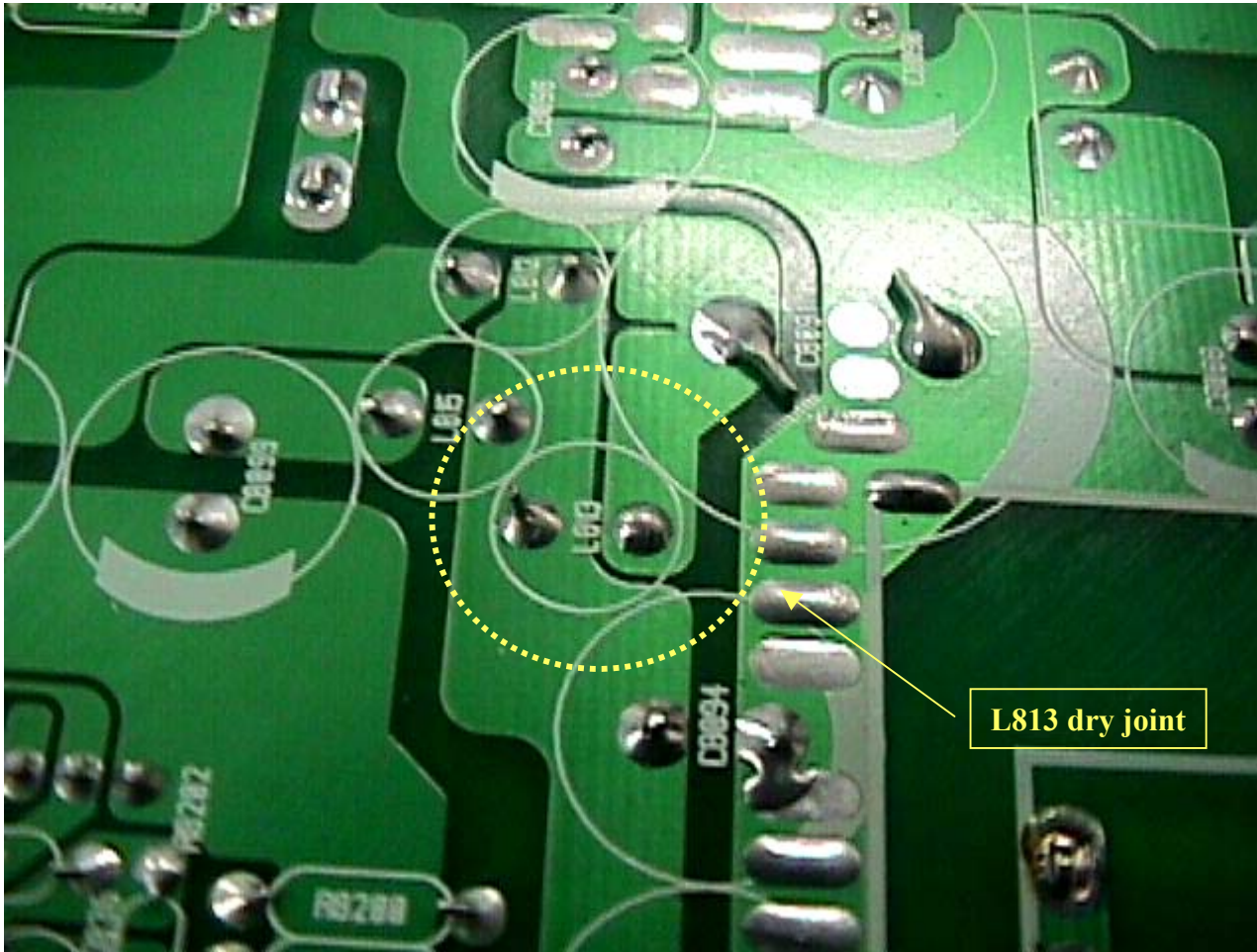
Power Board Change

PROTECT operation

when the electrical load  
voltage is Short.

When each voltage  
doesn't work (in general)

As soon as the Power is On, it's off in 2 ~ 3 minutes. ( Protect )



Inferior phase : as soon as the power, it's off in 2 - 3minutes.

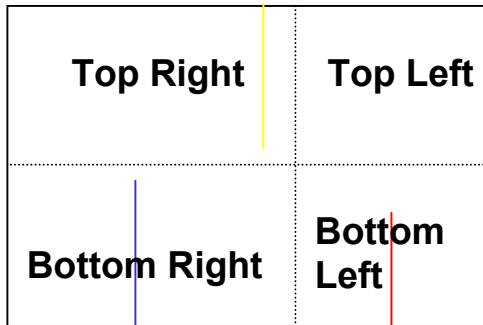
(PROTECT circuit operation) inferior cause : no VS voltage L813 Coil dry joint.

Check

Open the Connector connecting to each Board to check the power is off. if each Board is same, check the Power Board and voltage.

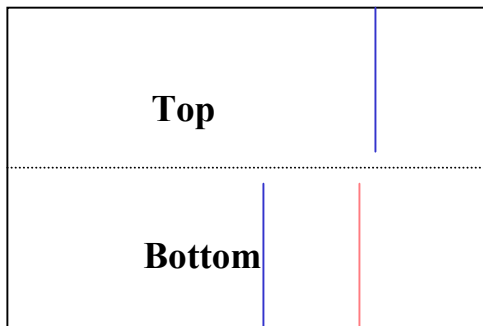


Press the ADJ KEY and check the position of add bar by changing WHITE or RED or BLUE or GREEN



PD-40X2

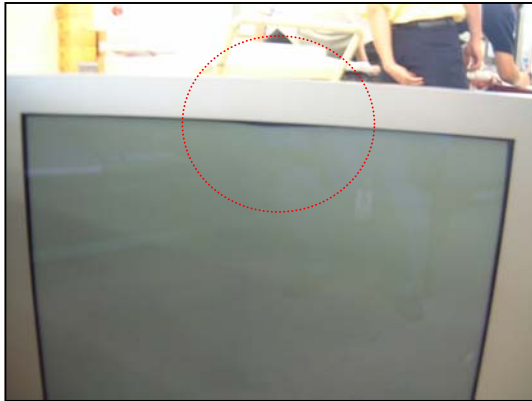
PD-40X2 uses 4 board such as left, right, top and bottom. Divide the screen in 5 and once you see ADD BAR check COF CONNECTOR between MODULE and X-BOARD. If there is no defect in COF CONNECTOR replace X-BOARD. But the problem still remains and check the connector between X-BOARD and CONTROL BOARD. And if you can't find defect, check CONTROL.



PD-40X3, PD-60X3

PD-60X3 uses 2 X-BOARDS such as top and bottom so when the problems occur in top or bottom, check ADD BAR first and then CONNECTOR, X-BOARD, CONNECTOR and CONTROL BOARD



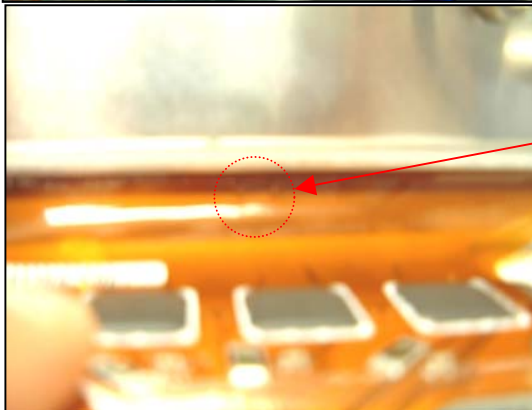


1. June 13 inferior receipt  
PD 40X 2 Filed inferior good  
Set No : 912KC 00036  
Module No : P239102815-215  
customer : in kyeonggi province  
contents: tape droop  
management: tape rework



13 inferior receipt  
PDP 40 NVDN 4  
Set No : 104KC 00176  
Module No : 503007  
PRODUCT RECORD : **DND sends it to C/S after reworking  
POWER B/D .**

contents : B color Address Open 1line causes : dented COF  
: no inferior phase in DND process, assumed that inferior  
happens during the analysis in DND ,due to Power B/D

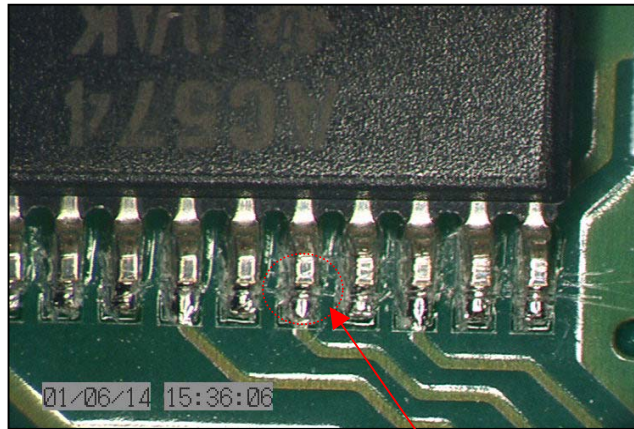
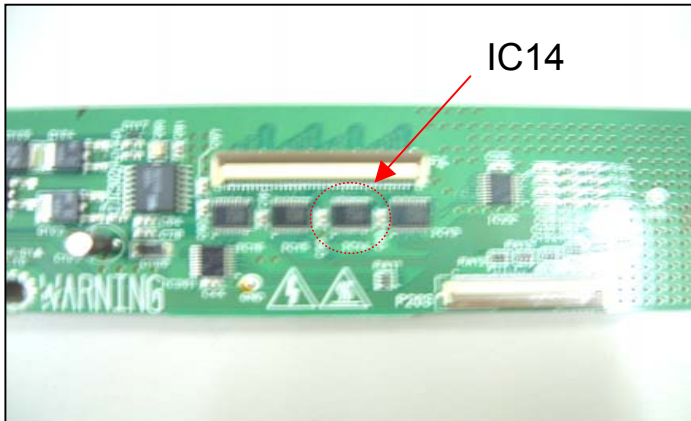


COF dented

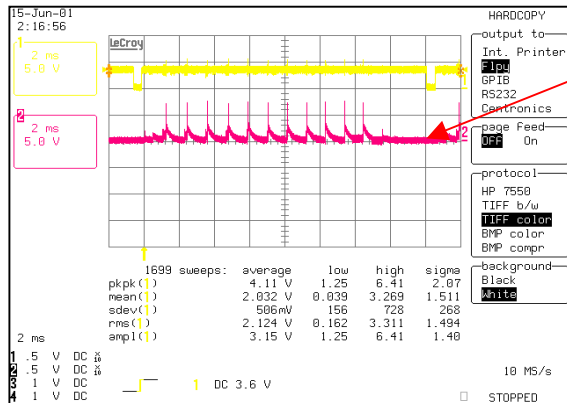


inferior receipt  
 PDP 40NVDN 4 Filed  
 Set No : 104KC 00206  
 Module No : 32184

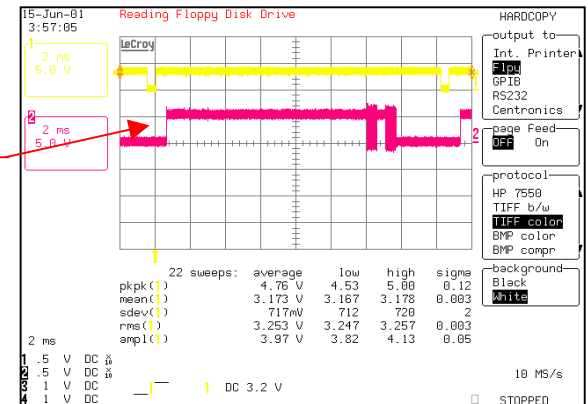
customer : a surgeon in Kyeonggi province  
 contents : Address R color inferior  
 cause : **DATA output inferior by X-L-TOP IC14,16 pin dry joint**  
**( normal curve by tearing off IC Pin)**  
 management : X-L-TOP replacement

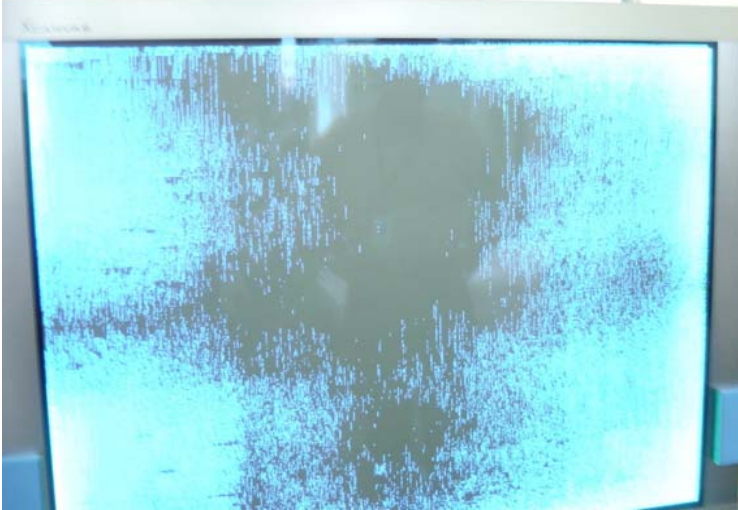



Dry joint



Curve inferior  
 normal curve

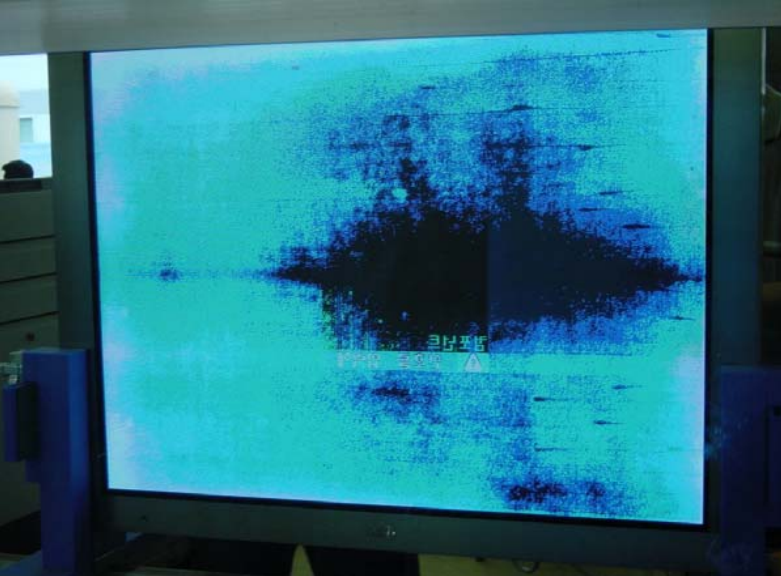


Inferior phase	causes	management
 <p>The blue spreads on the screen (electric discharge inferior) and the power's off in 2 - 3 minutes this phase repeats whenever the power is on.</p>	<p>Under 14V 15V Line, electric discharge inferior occurs and the power's off because protect circuit is off.</p> <p>- The power board SMPS not winded enough has the electric discharge inferior because of the short of the voltage capacity.</p> <p>- X-Board TR Short, over-electrical load Protect circuit .</p>	<p>The power board PCB replacement of SMPS TRANS replacement (B,D Type)</p> <p>X-Board replacement</p> <p>inferior X-Board</p> 

**Check**

Measure SMPS 2차 측 15V Line by Digital Multi Meter and check the voltage changes. If it is less than 14V, the screen ins broken with the blue. As soon as the power is ON and it's off showing this kind of screen. Remove all connectors and check the board not off.


. X-Board inferior and the power board SMPS replacement.

Inferior phase	cause	management
 <p>The whole screen is broken with the blue (electric discharge inferior) whenever the power is on this phase occurs. OSD is normal.</p>	<p>under 14V 15V Line, electric discharge inferior occurs.</p> <p>- The power board SMPS is not winded enough. because the voltage capacity is short ,electric discharge inferior occurs.</p>	<p>The power board PCB replacement or SMPS TRANS replacement ( B,D Type)</p>



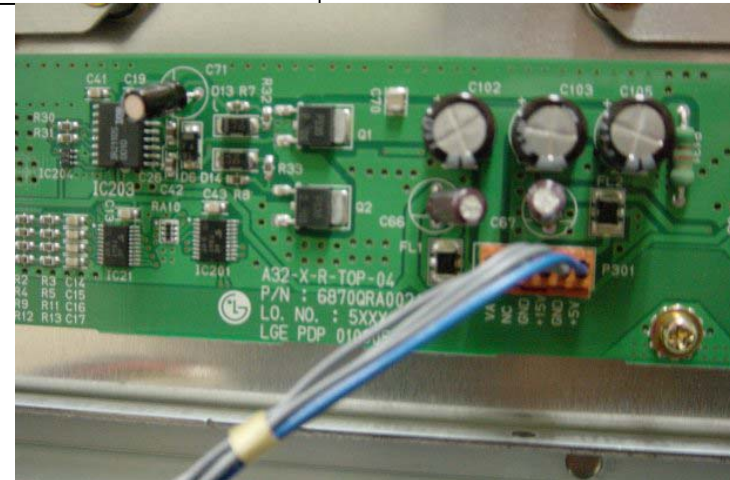
**Measure SMPS 2 15V Line by Digital Multi Meter and check the voltage changes. If it is less than 14V, the screen ins broken with the blue. (electric discharge inferior )**




Inferior phase	causes	management
 <p>The top left part of screen is broken (X-BOARD TOP RIGHT)</p>	<p>Presume X-BOARD inferior. cause : X-BOARD TOP RIGHT 5V doesn't turn</p>	<p>X-BOARD TOP RIGHT 5V adoesn't turn</p>

**Check**

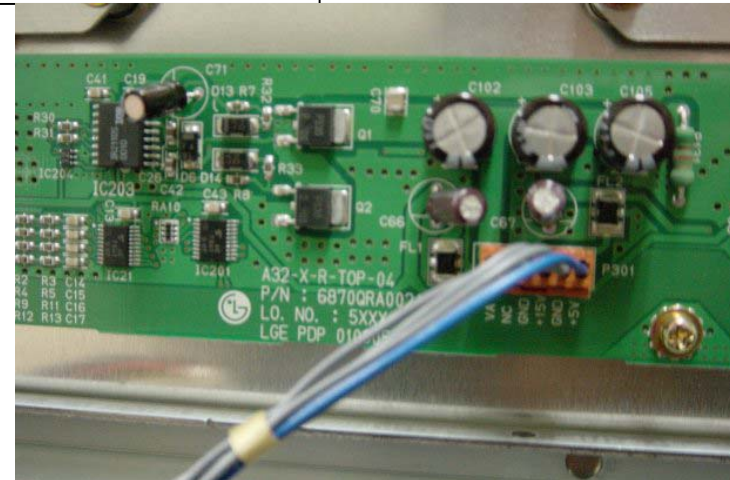
**X-BOARD TOP RIGHT 5V CHECK  
SMPS ---- X-BOARD TOP RIGHT 5V CHECK**




Inferior phase	causes	management
 <p>The pink in the top left part of the screen. (X-BOARD TOP RIGHT)</p>	<p><b>Presume X-BOARD inferior.</b>  <b>cause : when X-BOARD TOP RIGHT VA(70V) doesn't turn, this phase occurs.</b></p>	<p><b>X-BOARD TOP RIGHTVA(70V) doesn't turn.</b>   <b>VA(70V) LINE OPEN.</b></p>

**Check**

**X-BOARD TOP RIGHT VA (70V) CHECK**  
**SMPS ---- X-BOARD TOP RIGHT VA (70V) CHECK**



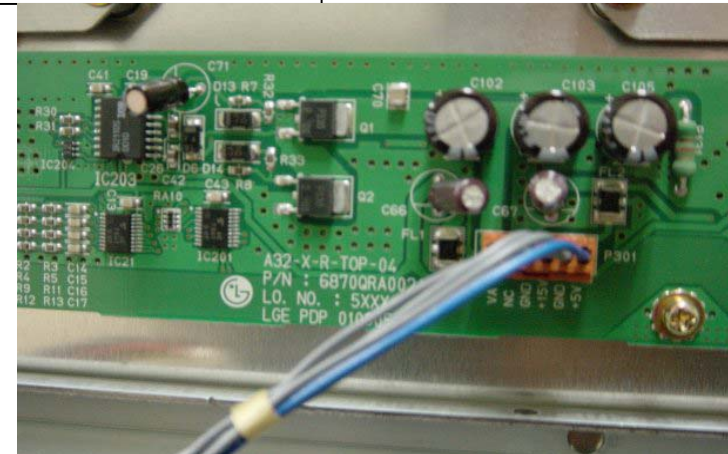
Inferior phase	Causes	management
 <p>the 3/5 top left in the screen isn't out (X-BOARD TOP RIGHT)</p>	<p><b>X-BOARD TOP RIGHT 12V doesn't turn Board VA(70V) doesn't turn.</b></p>	<p><b>X-BOARD TOP RIGHT 12V LINE OPEN</b></p> <p><b>X-Board Top Right VA(70V) Line Open</b></p>

**Check**


**X-BOARD TOP RIGHT 12V CHECK ( in 0V,this phase.)**

**X-Board Top Right VA(70V) CHECK. (in 0V this phase)**

**SMPS --- X-BOARD TOP RIGHT supplied 12V ,VA(70V)  
CHECK.**





Inferior phase	causes	management
 <p>The 3/5 top right of the screen isn't out. (X-BOARD TOP LEFT)</p>	<p>X-BOARD TOP LEFT 12V doesn't turn.</p> <p>X-BOARD TOP LEFT VA(70V) doesn't turn.</p>	<p>X-BOARD TOP LEFT 12V LINE OPEN.</p> <p>X-BOARD TOP LEFT VA(70V) LINE OPEN</p>

**Check**

X-BOARD TOP LEFT 12V CHECK ( in 0V)

X-BOARD TOP LEFT VA(70V) CHECK(IN 0V)

SMPS --- X-BOARD TOP LEFT , 12V,VA(70V) CHECK.