# Operational Description of 15inch LCD Monitor
## L510B
(Please, refer to a block diagram attached)

**1. Power**

 The part, power supplier of SMPS type, is make DC voltage 3.3V, 5Vs, 5Va, 5Vd, 6.2V, 12V to operate a main board and a inverter from input voltage AC 100~240V of mains network. The DC3.3V & the 6.2V are supply to main board as soon as applied AC 100~240V to this board. And others is supply to a main board after to be detected on-signal from a micro controller.
- DC 3.3V is supply into a scaling IC(ASI320)and LCD(LM151M-2)panel.
- DC 5Vs is supply into 8-bits micro controller(MTV212MV64U).
- DC 5Va is supply into a analog part of ADC IC(TDA8752B).
- DC 5Vd is supply into a digital part of ADC IC(TDA8752B).
- DC 6.2V is to switch ON-OFF of 3.3V supplied into LCD(LM151M-2) panel.
- DC 12V is to generate a AC high voltage to light 4-back light lamp
  of LCD panel on a inverter.


**2. Video Processing (Analog-Digital Converting)**

 The part, ADC IC(TDA 8752B) and around circuit, is convert an analog R, G, B signals applied from a video source into a digital R, G, B data, 8bits each used by a scaling IC(ASI320). A dot clock of the ADC IC, applies to a scalier IC, is max 80MHz, but it is change according to a video resolution and a vertical refresh rate.


**3. Video processing (image process)**

 The part, scaling IC(ASI320) and around circuit, is change a resolution applied from a video source into 1024*768 and R, G, B data, 8bits each to display on LCD panel. LCD panel only supports a resolution 1024*768 and vertical refresh, 60Hz~75Hz to display. And then if applied other resolutions, the IC changes a resolution to 1024*768 and controls a frame size to fit a LCD's needs. 14.318MHz from a crystal and a pixel clock from ADC IC are applied to operate the IC. A panel output interface of the IC is all 48bits wide low voltage TTL type, R, G, B data, 8bits(even-odd) each,
And supplies Hsyn(Horizontal frequency), Vsyn(Vertical frequency), Data
Enable clock, and pixel clock depending to vertical refresh to LCD panel.


**4. Inverter**

 The part only is invert DC 12V to AC 650V to light 4-back light lamp of LCD panel. And, excluding DC 12V from power supplier, supplies On-Off (active high, 5V), and brightness control signal(DC 0V~3V) from a main board. During operating to invert, transformer is switching about 50kHz to generate a AC high voltage.


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## 5. 8-bits micro controller(MTV212MV64U)

The part, a micro controller(MTV212MV64U) and around circuit, is control a digital level in the ADC IC, an image scaling in the scaling IC, and power functions as ON-OFF, DPMS by program. And the controller has an $I^2C$(SCL, SDA) interface to communicate with ADC IC and a direct-bus to communicate with scaling IC. And an operating clock of the controller is a 12MHz.

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