

Operational Description of 15inch LCD Monitor L520B

(Please, refer to a block diagram attached)

1. Power

The part, power supplier of SMP type, is made DC voltage 3.3Vs, 5Vs, 12V, 5Va, 5Vd to operate a main board and an inverter from input voltage AC 100~240V of mains network. The DC 3.3Vs are supplied to main board as soon as applied AC 100~240V to this board. And others are supplied to a main board after to be detected on-signal from a micro controller.

- DC 3.3Vs is supplied into a scaling IC (ASI310) and LCD (L150X2M) panel.
- DC 5Va is supplied into 8-bits micro controller (MTV312MV64U).
- DC 5Va is supplied into an analog part of ADC IC (TDA8752B).
- DC 5Vd is supplied into a digital part of ADC IC (TDA8752B).
- DC 3.3Vs is to switch ON-OFF of 3.3VL supplied into LCD (L150X2M) panel.
- DC 12V is to generate a AC high voltage to light 2-back light lamp of LCD panel on an 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 (ASI310). A dot clock of the ADC IC, applies to a scaler 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 (ASI310) and around circuit, is change a resolution applied from a video source into 1024*768 and R, G, B data, 6bits each to display on LCD panel. LCD panel only supports a resolution 1024*768 and vertical refresh, 50Hz~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 36bits wide low voltage TTL type, R, G, B data, 6bits (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 2-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.

5. 8-bits micro controller (MTV312MV64U)

The part, a micro controller (MTV312MV64U) 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 I²C (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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