

MODEL NO. : KC001

### **A. Scope :**

- a) cost effective design and high performance picture quality.
- b) Analog RGB and DVI-D inputs.
- c) Multi-sync capability up to SXGA/75Hz , compatible with standard DOS, VGA, SVGA, XGA, SXVGA and UXGA VESA timing.
- d) True color 16.7M data processing and display and display driving.
- e) Full control of all relevant display and interface parameter by OSD.
- f) Multi language support 8 languages.  
( English, French, German, Spanish, Italian, Japanese, Russian and Chinese )  
which can be chosen.
- g) VESA DDC 1/2 Bi, 2B+ compliant, VISTA.

### **B. General description :**

- a) The ADS663-1 is a TFT LCD Panel control Board that supports LVDS interface only.
- b) This AD board is designed for general use of VGA and DVI input, It is suitable for resolution up to SXGA/75Hz in all video modes.
- c) 12V/4.5A at least standard AC/DC power adaptor recommended.
- d) The layout of the OSD menu and keypad function is programmable that depends on customer's request.
- e) CGA/EGA/SOG TTL sync. analog DVI signal input is programmable that depends on customer's request .
- f) EMI class A compliance.

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### C. Electrical characteristics ( Ta : 25°C )

a) 12V convert to 5V

| Symbol  | Description                                 | Min  | Typ | Max  | Unit |
|---------|---|------|-----|------|------|
| Vdd     | +12V DC Power Supply                        | 10.8 | 12  | 13.2 | V    |
| Idd     | +12V Supply Current                         | 4.5  | --  | --   | A    |
| Vo1     | +5V DC Output                               | 4.75 | 5   | 5.25 | V    |
| Io1     | +5V Output Current                          | --   | --  | 3.5  | A    |
| Vripple | +5V Ripple & Noise                          | --   | --  | 60   | mVpp |
| $\eta$  | Efficiency of 12V convert to 5V at 3.5A O/P | 85   | --  | --   | %    |

b) AD board power consumption

|                                |       |
|--------------------------------|-------|
| Power consumption ( Typ )      | 0.2A  |
| Power saving wide ( Indctine ) | 0.05A |

c) Environment

|                                 |           |                            |
|---------------------------------|-----------|----------------------------|
| Temperature<br>(non-condensing) | Operating | -30°C ~ 85°C (LCD surface) |
|                                 | Storage   | -30°C ~ 85°C               |
| Humidity                        | Operating | 20°C ~ 90%                 |
|                                 | Storage   | 5°C ~ 95%                  |

※ **Warning : Do not suggest to operate in high temperature for long time.**

d) Thermal shock (LCD surface temperature)

|                 |         |
|-----------------|---------|
| Start with 25°C | 5 mins  |
| 25 to 85 °C     | 5 mins  |
| 85 °C           | 4 hours |
| 85 to 25 °C     | 5 mins  |



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|              |         |
|--------------|---------|
| 25 °C        | 5 mins  |
| 25 to -30 °C | 5 mins  |
| -30 °C       | 4 hours |
| -30 to 25 °C | 5 mins  |

※ 4 cycles will be the minimum for thermal chock test.

## e) Electrical parameters







| Symbol        | Description                           | Min      | Typ | Max     | Unit |
|---------------|---------------------------------------|----------|-----|---------|------|
| Vi ( SYNC )   | Video input signal                    | 0.55     | 0.7 | 0.9     | Vpp  |
| Vt+ ( HSYNC ) | Hsync Trigger positive                | 1.5      | 1.6 | 2.2     | V    |
| Vt- ( HSYNC ) | Hsync Trigger negative                | 0.7      | 1.1 | 1.4     | V    |
| FS            | Video sample rate                     | 10       |     | 165     | Mhz  |
| VT+ ( VSYNC ) | Vsync Trigger positive                |          | 1.8 | 2.0     | V    |
| VT- ( VSYNC ) | Vsync Trigger negative                | 0.8      | 1.5 |         | V    |
| VID           | Differential input Voltage            | 150      |     | 1200    | mV   |
| VICOM         | Input common mode Voltage             | AVCC-300 |     | AVCC-37 | mV   |
| VBTD          | Behavior when transmitter is disabled | AVCC-10  |     | AVCC+10 | mV   |

## f) Specification

| Category     |              | Specification                    |
|--------------|--------------|----------------------------------|
| Color        |              | 16.2M                            |
| Input signal | Video signal | Analog 0.7Vpp postive ( 75ohms ) |
|              | 3ync signal  | TTL L level + / -                |
| Frequency    | Horizontal   | 30 ~ 80 KHz                      |
|              | Vertical     | 56 ~ 75 Hz                       |



D. Function on OSD menu :

| OSD MENU   | Description   |
|--|---|
|  <p>General</p>         | <p>Adjust the List :</p> <ul style="list-style-type: none"> <li>● Brightness of the screen .</li> <li>● Contrast of the screen .</li> <li>● Horizontal size of the screen's image . (for VGA input only)</li> <li>● Focus of the screen's image .</li> <li>● Horizontal position of the screen's image. (for VGA input only)</li> <li>● Vertical position of the screen's image. (for VGA input only)</li> <li>● Auto Adjustment :<br/>Horizontal position, Vertical position, Horizontal size, Phase and color of the screen's image .<br/>Windows's background or characters should be display on full screen prior to proceed this function .</li> </ul> |
|  <p>Audio</p>          | <ul style="list-style-type: none"> <li>● VOLUME: Adjust the sound loud of the speakers</li> <li>● MUTE: Speaker ON/OFF</li> </ul>   |
|  <p>Color</p>         | <p>9300 , 7500 and 6500 Temperature, user Temperature .</p>   |
|  <p>Languages</p>     | <p>Multi language support 8 languages ( English, French, German, Spanish, Italian, Japanese, Russian and Chinese ) .</p>  |
|  <p>Tools</p>         | <p>Adjust the List :</p> <ul style="list-style-type: none"> <li>● OSD position .</li> <li>● Gamma Selection 0.8, 1, 1.2 and 1.6</li> <li>● Recall : "Yes" allows you to recover to the preset mode .</li> </ul>   |
|  <p>Choose Source</p> | <p>Choose Source:</p> <ul style="list-style-type: none"> <li>● Analog (VGA)</li> <li>● Digital (DVI)</li> </ul>   |

※The layout and format of OSD depends on customer's request .



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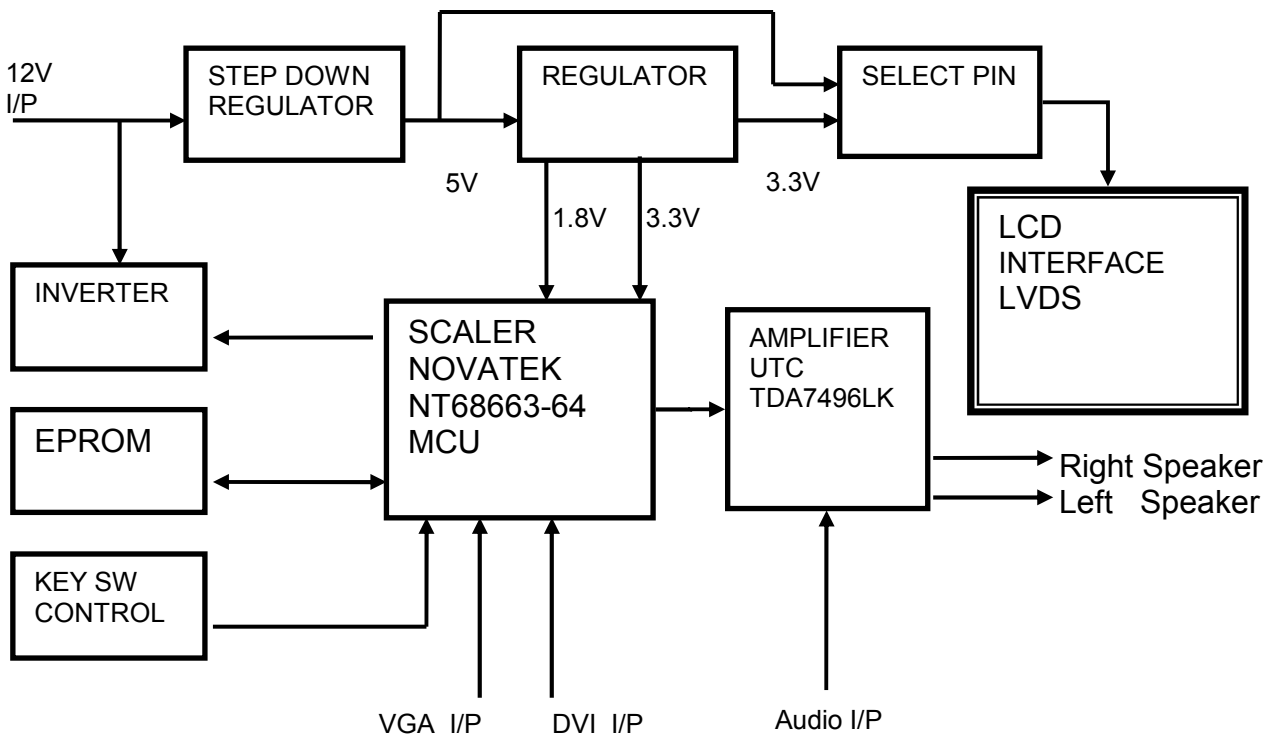
**E. Hotkey function definition :**

| OSD key | Function                |
|---------|-------------------------|
| LEFT    | ADJ - / SEL -           |
| RIGHT   | ADJ + / SEL +           |
| EXIT    | Auto adjust ( OSD OFF ) |
| ENTER   | OSD ON                  |
| POWER   | POWER ON / OFF          |

※The layout of hotkey and function definition depends on customer's request .

**F. Block diagram :**

**OPTIONAL**



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**G. EMI requirement :**

Combined with the customer product shall pass FCC PART15/CISPR22 classes A or B which depends on Customer's requirement.

**H. Vesa timing support :**

| SPEC<br>MODE               | Pixel<br>Freq. | Horizontal Timing |              |                |                 | Vertical Timing |             |               |                |
|----------------------------|----------------|-------------------|--------------|----------------|-----------------|-----------------|-------------|---------------|----------------|
|                            |                | Sync<br>Polar     | Freq.<br>KHz | Total<br>Pixel | Active<br>Pixel | Sync<br>Polar   | Freq.<br>Hz | Total<br>Line | Active<br>Line |
|                            | MHZ            |                   |              |                |                 |                 |             |               |                |
| 640×350<br>@70Hz<br>VESA   | 24.144         | P                 | 31.430       | 800            | 640             | N               | 70.000      | 449           | 350            |
| 720×400<br>@70Hz<br>VESA   | 28.287         | N                 | 31.430       | 900            | 720             | P               | 70.000      | 449           | 400            |
| 640×480<br>@60Hz<br>VESA   | 25.175         | N                 | 31.469       | 800            | 640             | N               | 59.940      | 525           | 480            |
| 640×480<br>@60Hz<br>VESA   | 25.175         | N                 | 31.469       | 800            | 640             | N               | 59.940      | 525           | 480            |
| 640×480<br>@72Hz<br>VESA   | 31.500         | N                 | 37.861       | 832            | 640             | N               | 72.809      | 520           | 480            |
| 640×480<br>@75Hz<br>VESA   | 31.500         | N                 | 37.500       | 840            | 640             | N               | 75.000      | 500           | 480            |
| 800×600<br>@56Hz<br>VESA   | 36.000         | P                 | 35.156       | 1024           | 800             | P               | 56.250      | 625           | 600            |
| 800×600<br>@60Hz 0<br>VESA | 40.000         | P                 | 37.879       | 1056           | 800             | P               | 60.317      | 628           | 600            |
| 800×600<br>@72Hz<br>VESA   | 50.000         | P                 | 48.077       | 1040           | 800             | P               | 72.188      | 666           | 600            |
| 800×600<br>@75Hz<br>VESA   | 49.500         | P                 | 46.875       | 1056           | 800             | P               | 75.000      | 625           | 600            |
| 1024×768<br>@60Hz<br>VESA  | 65.000         | N                 | 48.363       | 1344           | 1024            | N               | 60.005      | 806           | 768            |
| 1024×768<br>@60Hz<br>VESA  | 64.000         | N                 | 48.780       | 1312           | 1024            | N               | 60.001      | 813           | 768            |
| 1024×768<br>@70Hz<br>VESA  | 75.000         | N                 | 56.476       | 1328           | 1024            | N               | 70.070      | 806           | 768            |
| 1024×768<br>@75Hz<br>VESA  | 80.000         | N                 | 60.241       | 1328           | 1024            | N               | 74.927      | 804           | 768            |
| 1024×768<br>@75Hz<br>VESA  | 78.750         | P                 | 60.023       | 1312           | 1024            | P               | 75.030      | 800           | 768            |
| 1280×960<br>@60Hz<br>VESA  | 108.000        | P                 | 60.000       | 1800           | 1280            | P               | 60.000      | 1000          | 960            |
| 1280×1024<br>@60Hz<br>VESA | 108.000        | P                 | 63.981       | 1688           | 1280            | P               | 60.020      | 1066          | 1024           |
| 1280×1024<br>@75Hz<br>VESA | 135.000        | P                 | 79.976       | 1688           | 1280            | P               | 75.025      | 1066          | 1024           |

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Note : Timing depends on LCD Panel's requirement.

## I. Appendix :

This board can support various LCD panel, which has VGA, XGA, SXGA and UXGA resolution, LVDS INTERFACE.

The following table shows the model names of LCD panel, jumper setting for LCD panel power that can work with this A/D board and have been fully tested. The information contained herein is subject to change without notice.

### LCD Panel Setting List :

| No. | Model Name   | LCD Maker    | TCON VCC | Resolution |
|-----|--------------|--------------|----------|------------|
| 1   | M190EN04_V5  | Au-Optronics | 5V       | 1280*1024  |
| 2   | M190MWW1_V01 | Hannstar     | 5V       | 1280*1024  |
| 3   | M170EG01_VA  | Au-Optronics | 5V       | 1280*1024  |
| 4   | M170E5-LOC   | CHIMEI       | 5V       | 1280*1024  |
| 5   | LTM170EU-L21 | SAMSUNG      | 5V       | 1280*1024  |
| 6   | M150XN07_V.9 | Au-Optronics | 3.3V     | 1024*768   |
| 7   | G104SN02_V0  | Au-Optronics | 3.3V     | 800*600    |
| 8   | G084SN05_V0  | Au-Optronics | 3.3V     | 800*600    |
| 9   | M220EW01     | Au-Optronics | 5V       | 1680x1050  |

\* Updated per customer's request.