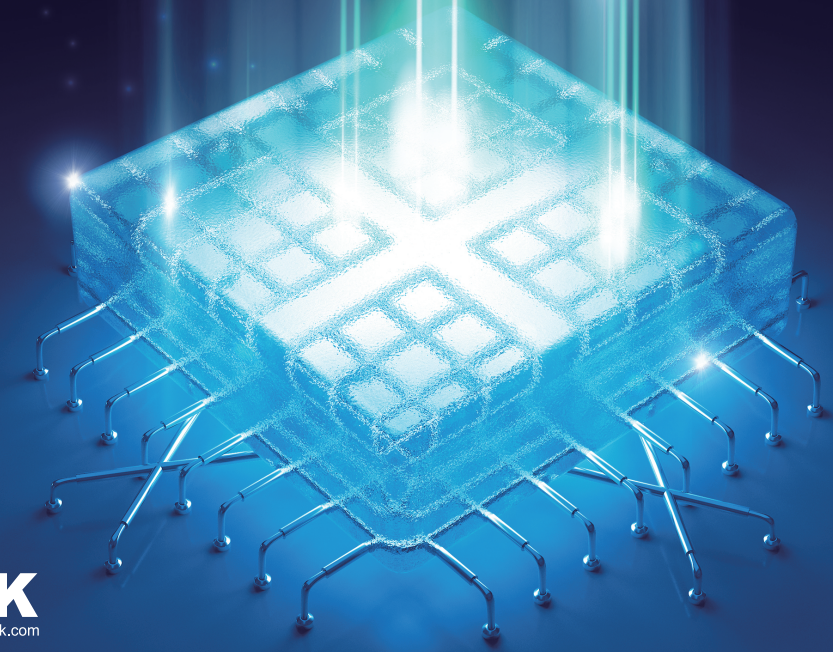




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contents

Embedded Board 04

X86 Board : 1356-TI Model (Intel Core i5-7360U)	05
X86 Board : 1168-TI3 Model (Intel Core i5-4200U)	06
X86 Board : H114MXM-TI ((Intel® Skylake and Kabylake)	07
ORION-3288 : ARM Quad Cores	08
ORION-3368 : ARM Octa Cores	09

Image Processor Board & its Accessories 10

SATURN series	11
TITAN series	12
VENUS series	13
FAN CONTROLLER with Light & TEMP. SENSOR	16
LVDS RECEIVER	17
DC/DC BOARD	18

FPGA Processor Board 19

IFL123-LVDS	20
IFL123-RSDS	21
LVDS CONVERTER	22
GENDER BOARD	23

Smart LED Driver 24

CVT120 (Programmable)	25
CVT230 (Programmable)	26
CVT456-MULTI2	27

Open Frame Solution 28

Standard model	29
Stretched type	30

SMPS (Switching Mode Power Supply) 31

Touch Solution and TFT LCD Modules 32

EMBEDDED BOARD



- Wide product range of X86 and ARM based embedded boards
- Various form-factors and performance levels
- Single board computers & baseboard designs

1. X86 BOARD

- 1) 1356-TI Model (Intel® Core™ i5-7360U Processor)
- 2) 1168-TI3 Model (Intel® Core™ i5-4200U Processor)
- 3) H114MXM-TI (Intel® Skylake and Kabylake Processor)

2. ARM CPU BOARD

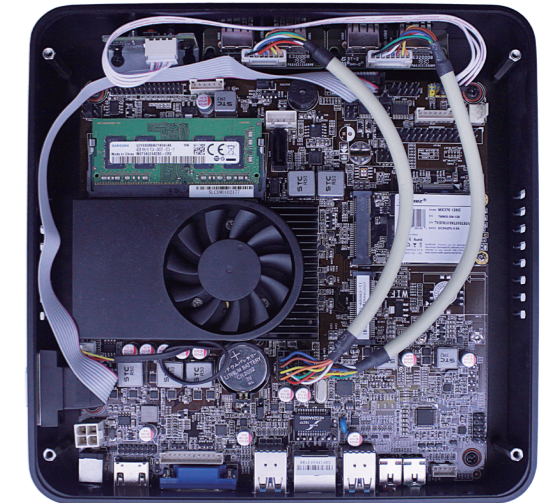
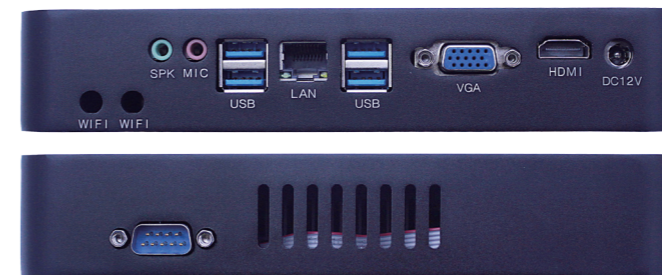
- 1) Orion 3288 Model
- 2) Orion 3368 Model



X86 BOARD

1356-TI Model

Intel® Core™ i5-7360U Processor



Specification

The Intel Core i5-7360U is a 64-bit dual-core entry-level performance x86 mobile microprocessor. Fabricated on a 14 nm process based on Kaby Lake microarchitecture, this processor operates at 2.3 GHz. The i5-7360U has a TDP of 15 W with a configurable TDP-down of 7.5 W.

This chip incorporates the HD Graphics 640 GPU operating at 300 MHz with a burst frequency of 1 GHz. This processor supports up to 32 GiB of non-ECC dual-channel DDR4-2133 memory.

◆ Basic Features

❖ Intel® Core™ i5-7360U Processor

- FCBGA1356
- Double core
- four threads
- 2.30 GHz Main frequency
- 4MB Smart Cache
- TDP15W

❖ Memory

- 1 x DDR4 SO 260-DIMM slot (memory support voltage 1.2V)
- Memory type DDR4-2133
- Maximum support 32GB

❖ Storage function

- 1 x SATA 2
- 1 x MINI PCI-E interface, one of which supports M-SATA SSD (solid-state hard disk) interface

❖ Network function

- On-board Realtek RTL8105E 100 Mbps network card chip (optional Gigabit Network card)

❖ Audio function

- On-board Realtek ALC662 supports 5.1 channels
- HD Audio Support audio input and output

❖ Backplane I/ O

- 1x DC_IN
- 4x USB3.0
- 1x Mic (input)
- 1x HDMI
- 1x LAN_RJ45
- 1x PHONE (output)
- 1x VGA

◆ Conditions

- Operating Temperature : 0°C~50°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~65°C
- Storage Humidity : 5%~90%RH

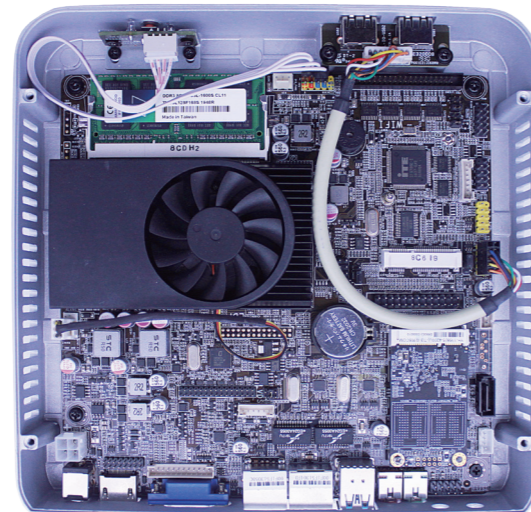
◆ Dimensions

- Board Size: 170mm x 170mm x 20mm
- Case Size: 190mm x 190mm x 35mm



1168-T13 Model

Intel® Core™ i5-4200U Processor



Specification

The Intel Core i5-4200U is an ULV (ultra low voltage) dual-core processor. It is based on the Haswell architecture and is manufactured in 22nm. Each core offers a base speed of 1.6 GHz, but can dynamically increase clock rates with Turbo Boost up to 2.6 GHz for 1 active core or 2.3 GHz for 2 active cores.

◆ Basic Features

- Intel® Core™ i5-4200U Processor
- FCBGA1168
- Double core
- Four threads
- 2.40 GHz Main frequency
- Pulse frequency 3.00 GHz
- 4 MB Cache
- TDP15W

❖ Memory

- 1 x DDR3 SO 204-DIMM slot (memory support voltage 1.5V)
- Memory type DDR3L 1333/1600
- Maximum support 8GB

❖ Storage function

- 1 x SATA 2.0
- 1 x MINI PCI-E interface, one of which supports M-SATA SSD (solid-state hard disk) interface

❖ Network function

- Realtek RTL8111E Gigabit Network Card Chip (optional 100 Gigabit Network Card)

❖ Audio function

- On-board Realtek ALC662 supports 5.1 channels
- HD Audio Support audio input and output

❖ Backplane I/O

- 1 x DC_IN
- 2 x USB3.0
- 1 x Mic (input)
- 1 x HDMI
- 2 x LAN_RJ45
- 1 x PHONE (output)
- 1 x VGA

◆ Conditions

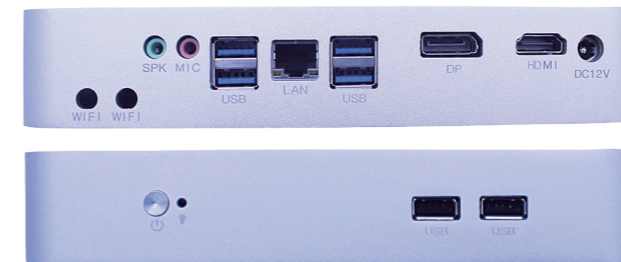
- Operating Temperature : 0°C~50°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~65°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

- Board Size: 170mm x 170mm x 20mm
- Case Size: 190mm x 190mm x 35mm

H114MXM-TI Model

X86 board which has LPGA1151 socket for Intel Skylake and Kabylake processor



Specification

X86 board which has LGA1151 socket supports CPU such as Intel Skylake & Kabylake.

◆ Basic Features

- ❖ Supportable CPU: Skylake & Kabylake
 - Support LGA1151 socket
 - CPU power consumption: 35W-95W
 - High Speed Chipset with Intel < H110

❖ Memory

- 2 x DDR4 SO 260-DIMM slot (memory support voltage 1.2V)
- Memory type DDR4-1866/2133
- Maximum support 64GB

❖ Storage function

- 2 x SATA 2.0
- 2 x MINI PCI-E interface, one of which supports M-SATA SSD (solid-state hard disk) interface

❖ Network function

- On-board Realtek RTL8111F Gigabit Network Card Chip

❖ Audio function

- On-board Realtek ALC662 supports 5.1 channels
- HD Audio Support audio input and output

❖ Backplane I/O

- 1 x DC Power Interface
- 2 x Double-Layer USB 3.0 Interfaces
- 1 x Mic (input)
- 1 x HDMI Interface
- 1 x LAN Interface
- 1 x PHONE (output)
- 1 x DP Interface

◆ Conditions

- Operating Temperature : 0°C~50°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~65°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

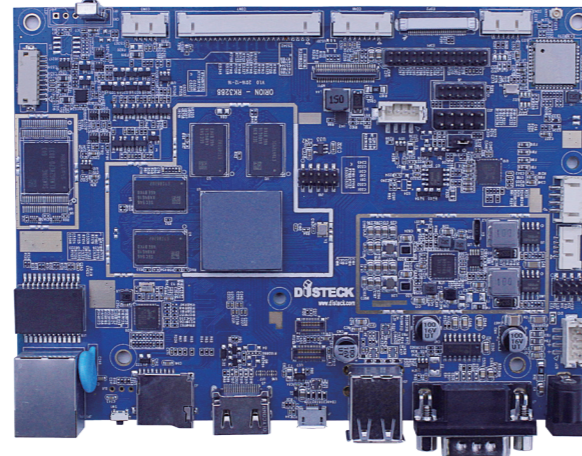
- Board Size: 170mm x 170mm x 20mm
- Case Size: 190mm x 190mm x 35mm



Orion3288

RockChip RK3288 Quadcore
2 GByte DDR3 Memory

- ❖ Android 6.0.1 (Marshmallow)
- ❖ Android 7.1.2 (Nougat without Audio)
- ❖ Debian
- ❖ Ubuntu
- ❖ Yocto OS



Specification

The **RK3288** is a low power, high performance processor for mobile phones, personal mobile internet device and other digital multimedia applications, and integrates quad-core Cortex-A17 with separately NEON and FPU coprocessor.

Many embedded powerful hardware engines provide optimized performance for high-end application. RK3288 supports almost full-format; include H.265 decoder by 2160p@60fps, H.264 decoder by 2160p@24fps, also support H.264/MVC/VP8 encoder by 1080p@30fps, high-quality JPEG encoder/decoder, and special image preprocessor and postprocessor.

Embedded 3D GPU makes RK3288 completely compatible with OpenGL ES1.1/2.0/3.0, OpenCL 1.1 and DirectX 11. Special 2D hardware engine with MMU will maximize display performance and provide very smoothly operation.

RK3288 has high-performance dual channel external memory interface (DDR3/DDR3L /LPDDR2/LPDDR3) capable of sustaining demanding memory bandwidth, also provides a complete set of peripheral interface to support very flexible applications.

◆ Conditions

- Operating Temperature : 0°C~50°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~65°C
- Storage Humidity : 5%~90%RH

◆ Basic Features

- RockChip RK3288 Quadcore
- 2GByte DDR3 Memory
- Supportable 16GByte eMMC Memory
- Dual-channels TFT LCD interface with 4-layers, 3840x2160 maximum display size.
- 1CH/2CH LVDS Interface for LCD – 6bits, 8 bits, 10bits
- 1lane/2lane/4lane eDP interface for LCD – 1.62Gbps/2.7Gbps
- HDMI v2.0 Support (4K2K support)
- MIPI DSI Interface
- 3-Port USB
 - External 2port
 - Internal 1port
- IEEE802.3 10/100/1000Mbps with Twisted-Pair
- IEEE802.11b/g/n WIFI with Bluetooth 4.0(Optional IEEE802.11a/b/g/n/ac)
- MicroSD/SDHC 1 Slot(Max. 32GByte)
- RS-232C : external 1Port
- UART: internal 1port
- External Speaker : 2W + 2W (8Ω), 2.9W + 2.9W(4Ω)
- Headset interface port (stereo headphone with MIC)
- 3G/4G modem interface with daughter board(optional)
- MicroUSB OTG 1port
- Camera Interface : 2port – MIPI CSI, 12bits CCIR Camera I/F(CIF)
- Keypad Interface : ESC, Volume+/-, Power On (Option board)
- IR Remote control interface
- I2C Interface for Touch(Option)
- Power: 12V DC Power adaptor, SMPS (Optional select)

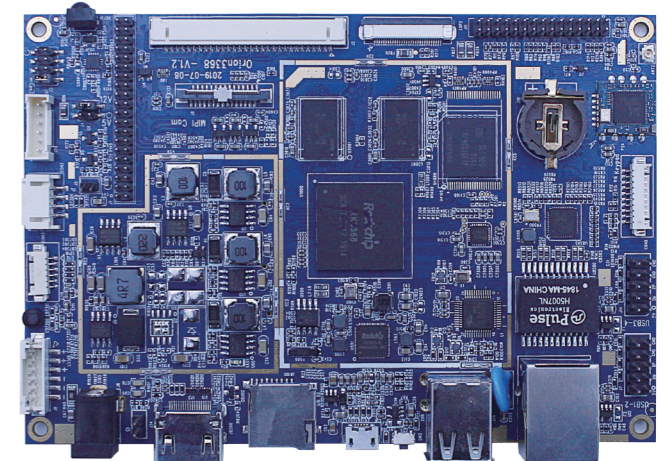
◆ Dimensions

- 150mm X 110mm X 20mm

Orion3368

RockChip RK33688 Octa-core
2GByte DDR3 Memory

- ❖ Android 7.1.2 (Nougat)
- ❖ Debian
- ❖ Ubuntu
- ❖ Yocto OS



Specification

The **RK3368** is a low power, high performance processor for mobile phones, personal mobile internet device and other digital multimedia applications, and integrates octa-core Cortex-A53 with separately NEON coprocessor. Many embedded powerful hardware engines provide optimized performance for high-end application. RK3368 supports almost full-format H.264 decoder by 4Kx2K@30fps; H.265 decoder by 4Kx2K@60fps, also support H.264/MVC/VP8 encoder by 1080p@30fps, high-quality JPEG encoder/decoder, and special image preprocessor and postprocessor.

Embedded 3D GPU makes RK3368 completely compatible with OpenGL ES3.1, OpenCL ES3 and DirectX 9.3. Special 2D hardware engine with MMU will maximize display performance and provide very smoothly operation.

RK3368 has high-performance external memory interface (DDR3/DDR3L /LPDDR2/LPDDR3) capable of sustaining demanding memory bandwidth, also provides a complete set of peripheral interface to support very flexible applications.

◆ Conditions

- Operating Temperature : 0°C~50°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~65°C
- Storage Humidity : 5%~90%RH

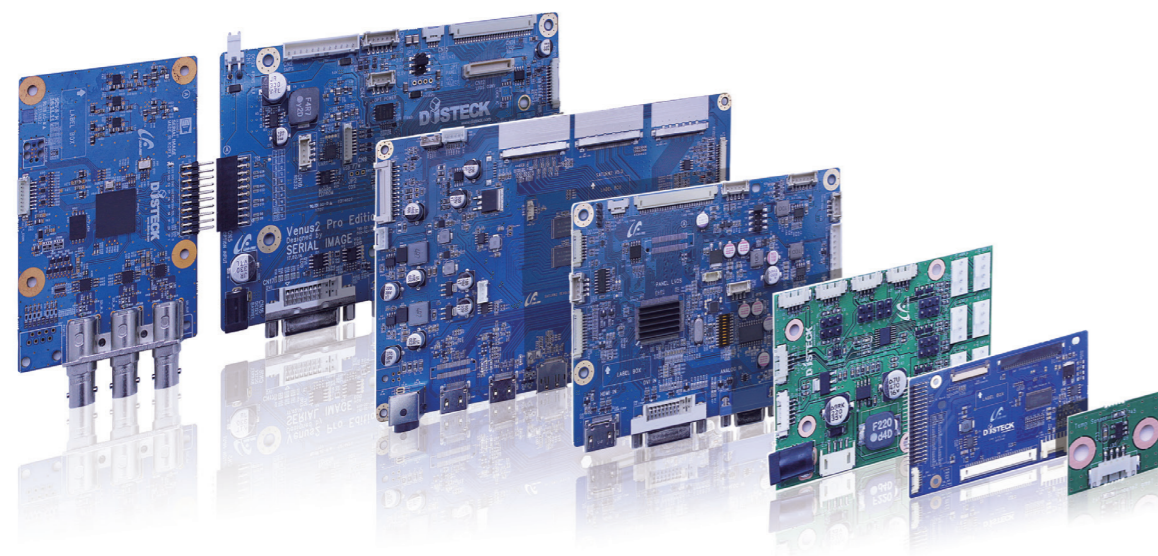
◆ Basic Features

- RockChip RK33688 Octa-core
- 2GByte DDR3 Memory
- Supportable 8GByte eMMC Memory
- Dual-channels TFT LCD interface with 4-layers, 3840x2160 maximum display size.
- 1CH/2CH LVDS Interface for LCD – 6bits, 8bits
- 1lane/2lane eDP interface for LCD – 1.62Gbps/2.7Gbps
- HDMI 1.4/v2.0 Support (4K2K support)
- MIPI DSI Interface
- 6-Port USB
 - External 2port
 - Internal 4port (Pin-header type)
- IEEE802.3 10/100/1000Mbps with Twisted-Pair
- IEEE802.11b/g/n WIFI with Bluetooth 4.0(Optional IEEE802.11a/b/g/n/ac)
- MicroSD/SDHC 1 Slot(Max. 32GByte)
- UART : internal 1port
- External Speaker: 2W + 2W (8Ω), 2.9W + 2.9W(4Ω)
- Headset interface port(stereo headphone with MIC)
- MicroUSB OTG 1port
- Camera Interface : 1port – MIPI CSI
- Keypad Interface(Option board): Back, Home, Volume+/-, Power Key
- G-Sensor
- IR Remote control interface
- I2C Interface for Touch(Option)
- Power(Optional select): 12V DC Power adaptor or SMPS

◆ Dimensions

- 140mm X 95mm X 20mm

IMAGE PROCESSOR BOARD & ITS ACCESSORIES

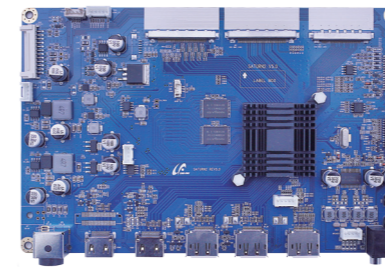


- High-end board solutions for displays up to FHD/WUXGA and UHD/4k resolution
- Latest type of display interfaces and inputs support
- Fully configured plug & play kits with converter, power supply, cables and OSD Key Pad
- Performed the outstanding image quality

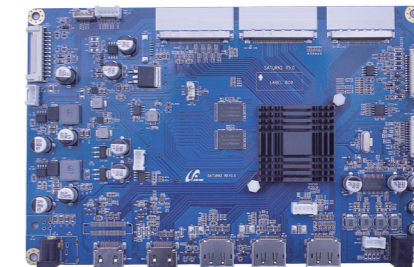
1. Saturn2 (AD Board, up to 4k / UHD, Vx1 & eDP interface type, PIP & PBP)
2. Titan (AD Board, up to 4k / UHD, Vx1 & eDP interface type)
3. Venus2 (AD Board, up to FHD / WUXGA, 10 bit LVDS or CMOS interface type)
4. Venus3 (AD Board, up to FHD / WUXGA, eDP interface type)
5. Venus2Pro (AD Board, up to FHD / WUXGA, LVDS interface type, SDI input support)
6. LVDS Receiver (Signal converter from LVDS to TTL/CMOS type interface)
7. DC/DC BOARD (Power Accessory for 12V to 24V)



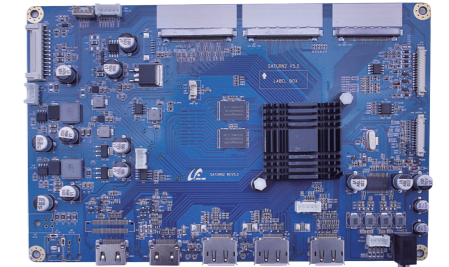
SATURN2



24V DC In



12V DC In



SMPS In (Wafer Type)

◆ Display

UHD(3840x2160, 4096x2160) resolution display format.
Up scaling can do VGA, SVGA, XGA, SXGA, UXGA to UHD VESA Standard Mode.

- Provides upto 30-bit color and 4Ch LVDS
- Vx1 interface
- e-DP 8-lane(HBR) / 4-lane(HBR2) Interface

◆ Video Input

- 2 x HDMI In/HDMI 2.0 /4K2K@60Hz
- 2 x DisplayPort In/DP1.2/4K2K@60Hz
- 1 x DisplayPort out
- 1 x VGA in (Wafer type: option)

◆ Audio

- RGB: Analog Audio
- HDMI Input: Digital Audio
- DisplayPort: Digital Audio
- SPDIF out port (Wafer type)
- Speaker Output: 10W+10W,Stereo Sound
- Headphone Output: 3.5ø Stereo Jack

◆ Other Connections

- RS232 control Port (Wafer type)
- Key Pad/IR: 7Key, IR Remote Controller
- I2C control port (Wafer type: Master/Slave)

◆ Power

- 12VDC Power
- 24VDC Power
- SMPS In (wafer type)

◆ Basic Features

- Over driver/Over scan Function
- 6Color control
- PCM (Precise Color Management)
- Sharpness/Hue/Color Support
- Gamma Control
- Color Effect Function
- Response time Control
- UART for RS232 Control

◆ Advanced Features

- PIP/PBP(L/R, Top/Bottom)/4P(4Windows) Function
- DisplayPort MST (Multi Stream Transport, up to FHD 4 EA)
- Daisy chain Output.
- Video-wall control: up to 5 x 5 (Option)
- PIP Sound Choice
- HDR (High Dynamic Range)/Optional Support
- Ambient Light sensor control
- FAN control (RPM) by temperature sensor

◆ Conditions

- Operating Temperature : -10°C~ 70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

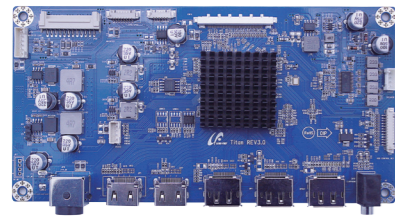
- 200mm X 130mm x 1.6mm

◆ Options

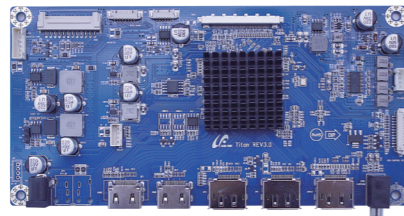
- Light Ambient Sensor Board (I2C type)
- Temperature Sensor Board (I2C type)
- FAN control Board



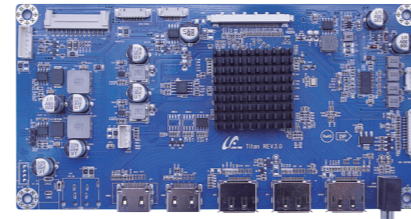
TITAN



24V DC In



12V DC In



SMPS In (Wafer Type)

◆ Display

UHD(3840x2160, 4096x2160) resolution display format.
Up scaling can do VGA, SVGA, XGA, SXGA, UXGA to UHD VESA Standard Mode.

- Vx1 interface
- e-DP 8-lane(HBR) / 4-lane(HBR2) Interface

◆ Video Input

- 2 x HDMI In/HDMI 2.0 /4K2K@60Hz
- 2 x DisplayPort In/DP1.2/4K2K@60Hz
- 1 x DisplayPort out

◆ Audio

- HDMI Input: Digital Audio
- DisplayPort: Digital Audio
- SPDIF out port (Wafer type)
- Speaker Output: 10W+10W,Stereo Sound

◆ Other Connections

- RS232 control Port (Wafer type)
- Key Pad/IR: 7Key, IR Remote Controller
- I2C control port (Wafer type)

◆ Power

- 12VDC Power
- 24VDC Power
- SMPS In (wafer type)

◆ Basic Features

- Over driver/Over scan Function
- 6Color control
- PCM (Precise Color Management)
- Sharpness/Hue/Color Support
- Gamma Control
- Color Effect Function
- Response time Control
- UART for RS232 Control

◆ Advanced Features

- DisplayPort MST (Multi Stream Transport, upto FHD 4 EA)
- Daisy chain Output.
- Video-wall control: up to 5 x 5 (Option)
- HDR (High Dynamic Range) Support
- Ambient Light sensor control
- FAN control (RPM) via FAN controller by temperature sensor

◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

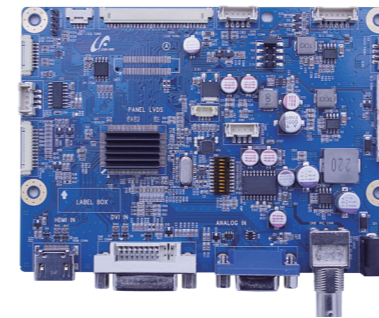
◆ Dimensions

- 180mm X 92mm x 1.6mm

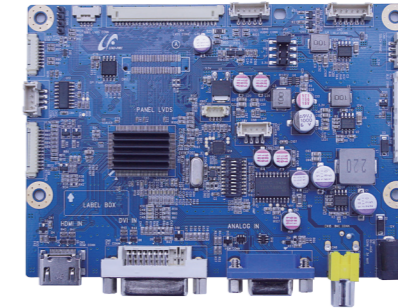
◆ Options

- Light Ambient Sensor Board (I2C type)
- Temperature Sensor Board (I2C type)
- FAN control Board

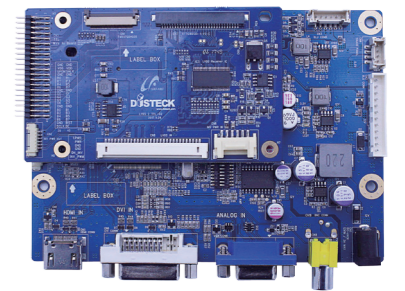
VENUS2



BNC Type



RCA Type



Venus2+LVDS Receiver

◆ Display

Full CRT multi-sync monitor compatibility
Multi-sync capability up to WUXGA resolution @ 60Hz,compatible standard
DOS, VGA, SVGA, XGA and SXGA / WUXGA VESA timing
Expand DOS, VGA and SVGA to full screen display

- 10-bit data processing and **10-bit LVDS** output
- **TTL** output and **10V Vcc** supportable

◆ Video Input

- 1 x Analog RGB
- 1 x DVI-D
- 1 x HDMI
- 1 x CVBS (Jack option: RCA type or BNC type)

◆ Audio

- Audio support (2W x 2W speaker out) by separate daughter board

◆ Other Connections

- Touch Power Control
- USB for Firmware Update
- RS232 control Port (Wafer type)
- Key Pad/IR: 5Key, IR Remote Controller
- I2C control port (Wafer type)

◆ Power

- 12VDC Power
- 24VDC Power (Optional DC/DC board)
- SMPS In (wafer type)

◆ Basic Features

- Full control of all relevant display and interface parameters via OSD
- Multi language support
- VESA DDC 1/2B compliant
- Compatible with VESA DPMS power saving
- UART for RS232 Control

◆ Advanced Features

- Multi-standard color system at CVBS (PAL/NTSC)
- Image Flip/Mirror supportable by AD board
- Serial Control (RS232C) ready / Customized protocol setting (optional contract basis)
- Media Player (wafer to USB: Firmware Update port)
- Ambient Light sensor control
- FAN control (RPM) by temperature sensor

◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

- 140mm X 100mm x 20mm

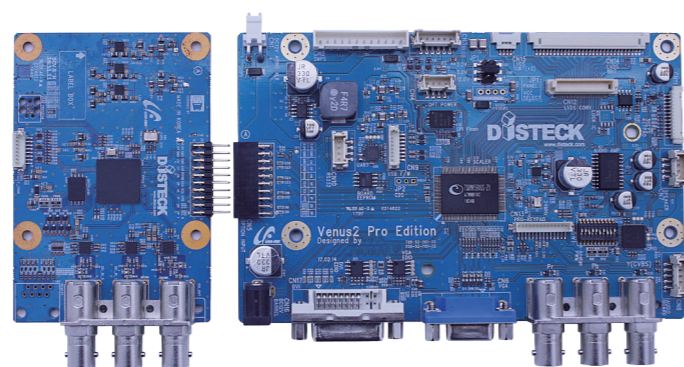
◆ Options

- Light Ambient Sensor Board (I2C type)
- Temperature Sensor Board (I2C type)
- FAN control Board



VENUS2 PRO

Professional grade video and audio processing. Especially the high performance picture quality complying with Broadcasting Monitor and Medical Monitor (DICOM: Digital Imaging and Communications in Medicine)



3G HD/SD-SDI

VENUS2 PRO

◆ Display

Full CRT multi-sync monitor compatibility
Multi-sync capability up to WUXGA resolution @ 60Hz, compatible standard
DOS, VGA, SVGA, XGA and SXGA / WUXGA VESA timing
Expand DOS, VGA and SVGA to full screen display

- 10-bit data processing and 10-bit LVDS output
- Integrated Frame Buffer Memory increases reliability
- Various output option board available for eDP, MIPI- DSI, Dual-to-Single Link, Left-Right Merging and FPC
- 3D Comb-Filter for CVBS Input
- 3D Noise Reduction reduces temporal noise effectively

◆ Video Input

- 1 X DVI-D (HDMI audio supported)
- 1 X Analog RGB
- 1 X YPbPr, CVBS
- 1 X 3G/HD/SD-SDI (Option)

◆ Audio

- Stereo 2W + 2W Amplified
- There are two version With Amp or W/O Amp by F/W.

◆ Other Connections

- Power outlet for Auxiliary board (12V or DC5V)
- Power outlet for Backlight (12V)
- RS232 control Port (Wafer type)
- USB for Firmware Update
- Key Pad/IR: 5Key, IR Remote Controller
- I2C based Keypad with Audio output

◆ Power

- DC12V 4pin XLR or DC12V barrel
- 24VDC Power (Optional DC/DC board)
- SMPS In (wafer type)

◆ Basic Features

- Full control of all relevant display and interface parameters via OSD
- Multi language support
- VESA DDC 1/2B compliant
- Compatible with VESA DPMS power saving modes

◆ Advanced Features

- Multi-standard color system at CVBS (PAL/NTSC)
- Image Flip/Mirror supportable by AD board
- Serial Control (RS232C) ready / Customized protocol setting (optional contract basis)
- Media Player (wafer to USB: Firmware Update port)
- Ambient Light sensor control
- FAN control (RPM) by temperature sensor

◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

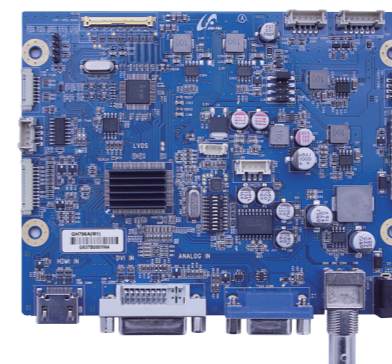
◆ Dimensions

- 155mm X 100mm x 20mm

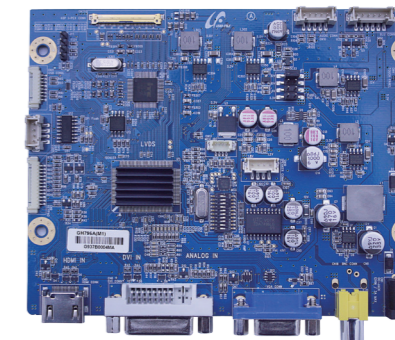
◆ Options

- 3G HD/SD-SDI Board

VENUS3



BNC Type



RCA Type

◆ Display

- AD Board for eDP type signal interface panels
- State of the art high performance picture quality complying with Broadcasting and Medical Monitor
- Multi-sync capability up to WUXGA resolution @ 60Hz, compatible standard
- DOS, VGA, SVGA, XGA and SXGA/WUXGA VESA timing
- Expand DOS, VGA and SVGA to full screen display
- 10-bit data processing and 4Lane eDP and 10V Vcc supportable circuit inside

◆ Video Input

- 1 x Analog RGB
- 1 x DVI-D
- 1 x HDMI
- 1 x CVBS (Jack option: RCA type or BNC type)

◆ Audio

- Speaker (Digital Audio Out)
- Audio support (2W x 2W speaker out) by separate daughter board

◆ Other Connections

- Touch Power Control
- USB for Firmware Update
- RS232 control Port (Wafer type)
- Key Pad/IR: 5Key, IR Remote Controller
- I2C control port (Wafer type)

◆ Power

- 12VDC Power
- 24VDC Power (Optional DC/DC board)
- SMPS In (wafer type)

◆ Basic Features

- Full control of all relevant display and interface parameters via OSD
- Multi language support
- VESA DDC 1/2B compliant
- Compatible with VESA DPMS power saving
- UART for RS232 Control

◆ Advanced Features

- Multi-standard color system at CVBS (PAL/NTSC)
- Image Flip/Mirror supportable by AD board
- Serial Control (RS232C) ready / Customized protocol setting (optional contract basis)
- Media Player (wafer to USB: Firmware Update port)
- Ambient Light sensor control
- FAN control (RPM) by temperature sensor

◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

- 140mm X 110mm x 20mm

◆ Options

- Light Ambient Sensor Board (I2C type)
- Temperature Sensor Board (I2C type)
- FAN control Board

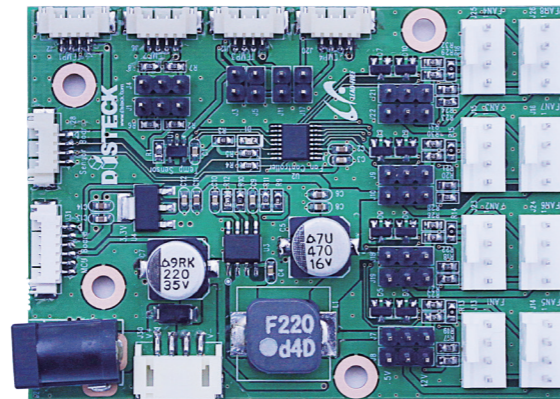


FAN Controller

PWM based Fan Controller and Monitoring.

◆ Feature

- PWM based Fan Controller and Monitoring
- 8 x FAN support
 - 4 x FAN primary, 4 x FAN secondary
 - 12V/5V Fan support
- 5 x Temperatures sensor support
 - TMP05 or TPM06
- SMBus/I2C interface : Monitoring and Control
- I2C chain connector reserved for ambient sensor



◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 30%~85%RH
- Storage Temperature : -10°C~70°C
- Storage Humidity : 5%~90%RH

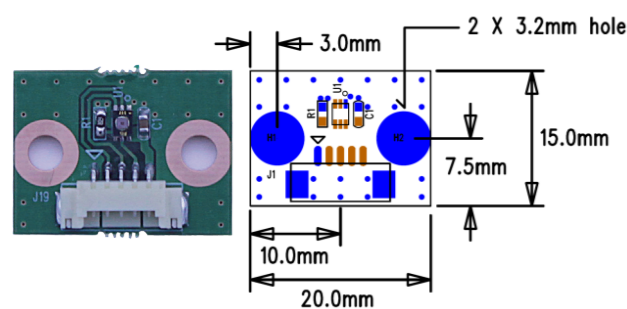
◆ Dimensions

- 75 mm X 55 mm

Sensor Board

1. Ambient Light Sensor board

◆ I2C Type

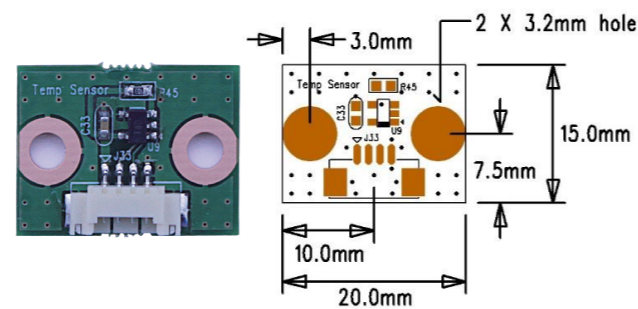


◆ Dimensions

- 20 mm X 15 mm

2. Temperature Sensor board

◆ I2C Type



◆ Dimensions

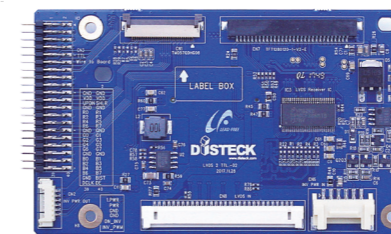
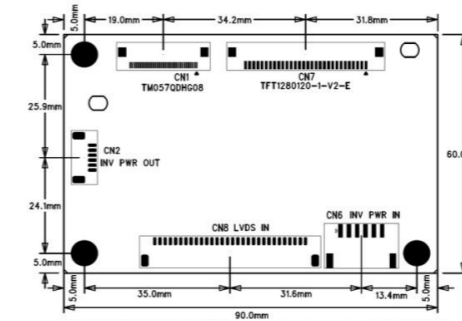
- 20 mm X 15 mm



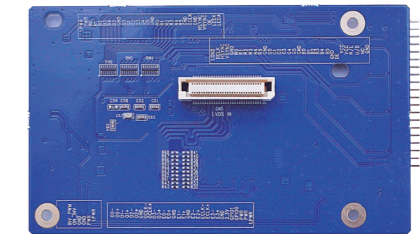
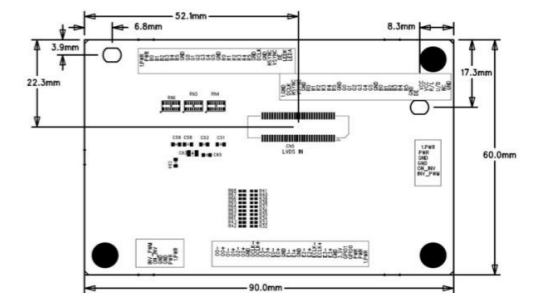
LVDS Receiver

LVDS to TTL Board

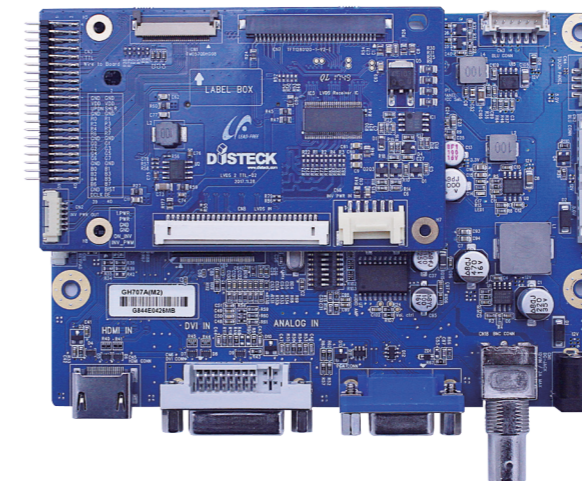
◆ Feature



<Top View>



<Bottom View>



◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 30%~85%RH
- Storage Temperature : -10°C~ 70°C
- Storage Humidity : 5%~90%RH

◆ VENUS2 + LCDS Receiver

Venus2 has LVDS output port (CN17). So, Venus2 can support TTL interface panel with LVDS Receiver.

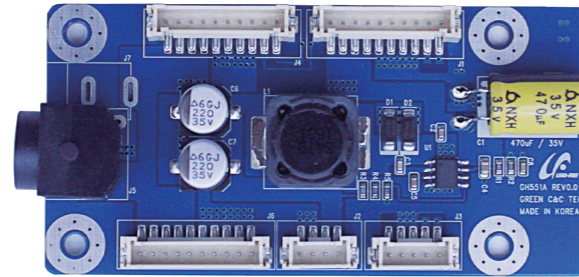
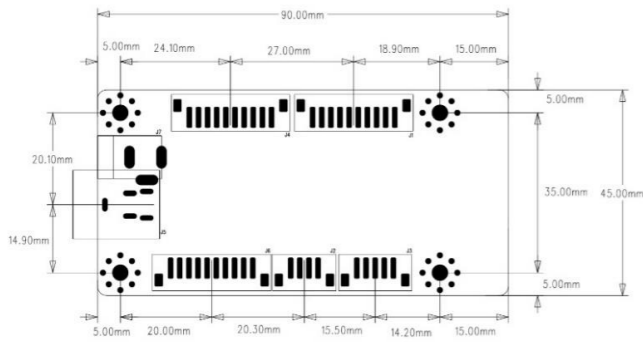
◆ Dimensions

- 90 mm X 50 mm

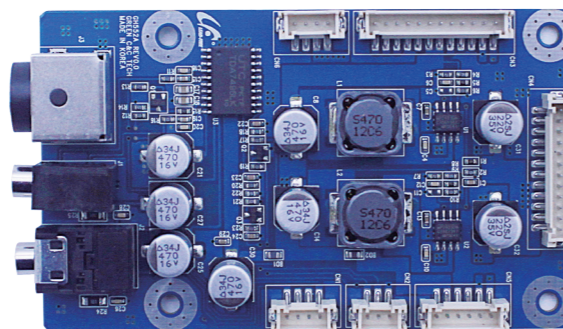
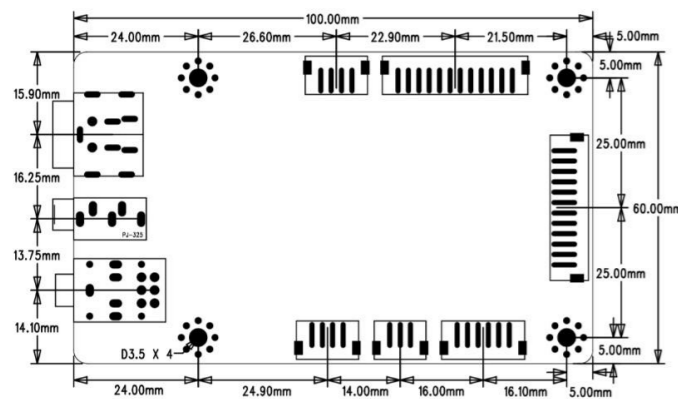


DC/DC Board

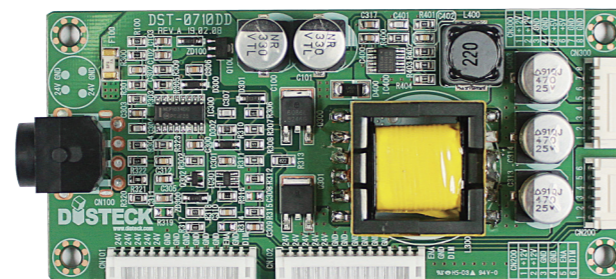
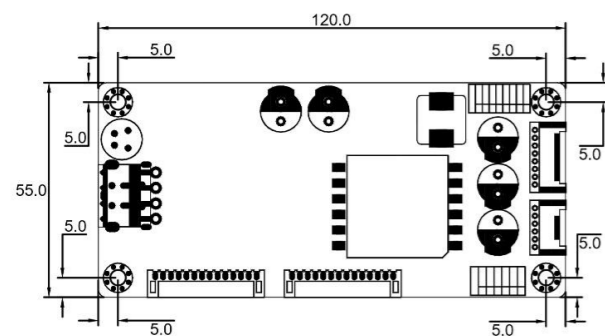
1. DC/DC Board (24V to 12V, 90x45x17mm)



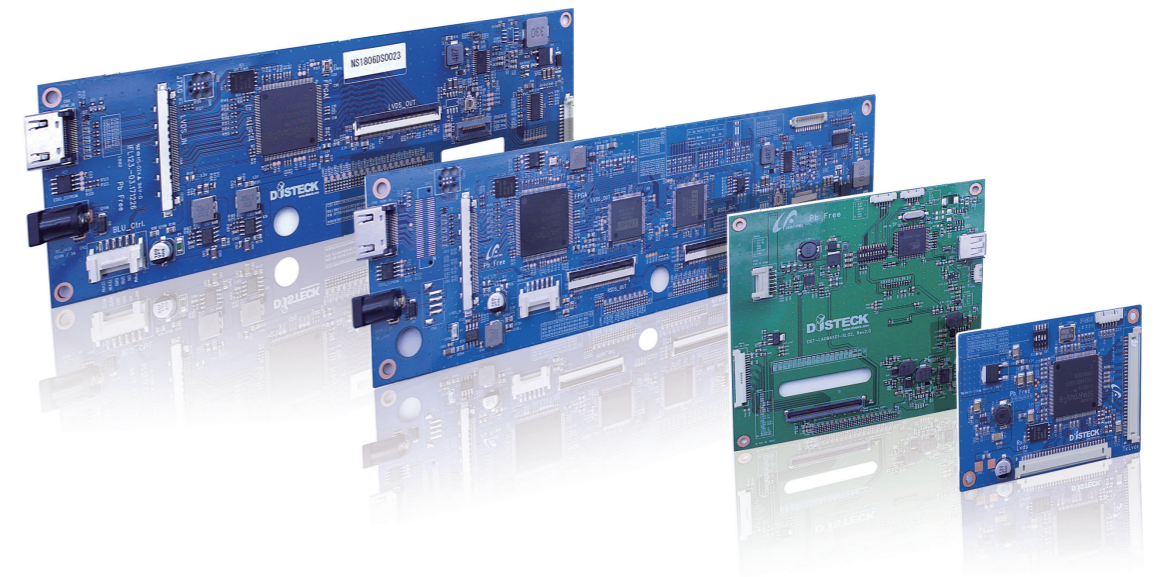
2. AUDIO + DC/DC Board (24V to 12V, 100x60x17mm)



3. DC/DC Board (24V to 12V/5A, 5V/2A, 120x55x20mm)



FPGA PROCESSOR BOARD



For features that can't be implemented with traditional scaler chips, DISTECK developed BOARD using FPGA (Field-programmable logic array).

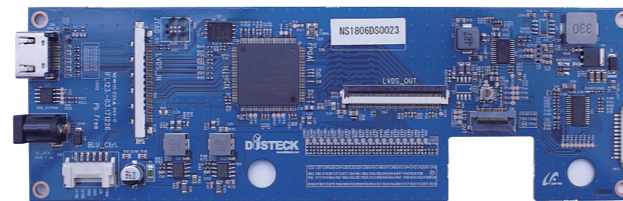
- 1. IFL123-LVDS
- 2. IFL123-RSDS
- 3. LVDS CONVERTER (Signal Converter for TIANMA 9" & KOE/JDI 7")
- 4. GENDER BOARD (for Automotive LCD Panel)



IFL123-LVDS

The IFL123-LVDS is designed for ready to use the application of LG 12.3" LCD modules;

- LA123WF1-SL01, SL02
- LA123WF4-SL01, SL02, SL04
- All other LVDS type series



Specification

◆ Display

- Digital Video Interface for LG 12.3" LVDS interface type stretched type LCD panels such as LA123WF1-SL01, LA123WF1-SL02 and LA123WF4-SL01 models.
- Video data stream has to be re-aligned by from left/right order to odd/even order in order to see one unity screen.
- Without data re-alignment, user will see odd/even pixel on left/right sides of LCD panel just like two separated screens
- IFL123 has a high speed digital processor that realigns pixel mapping. Data processing delay is less than 1 line.

◆ Video Input

- 2 input types are available, LVDS or DVI type.
- Support 8 bits direct Single-link LVDS Input mode (Can not be used with DVI type)
- Support 8 bits RGB 4:4:4 DVI Input mode (Can not be used with LVDS type)

◆ Others

- IFL123 also supplies power requirements for LCD panel such as Vgh, Vgl, Vcom and Gamma reference voltages with single DC12V input.
- IFL123 provides backlight control unit with just in-place connector for BLU(LED) FFC cable from LA123WF1, LA123WF3 and LA123WF4 panels side. Placement guide holes are crafted on the PCB for easier positioning when attaching the board to rear side of LCD panels.

◆ Basic Features

- Integrated Backlight Controller with Analog and PWM dimming
- Integrated power management with single 12V input
- Integrated power supply for VGH/VGL/VCOM
- Integrated Gamma reference voltage supply
- Integrated EDID for DVI mode.

◆ Caution

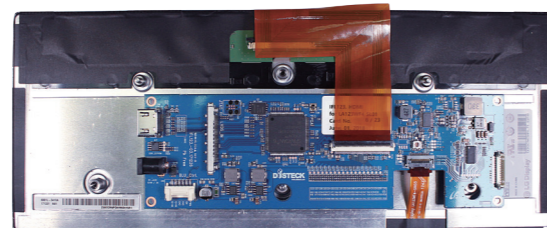
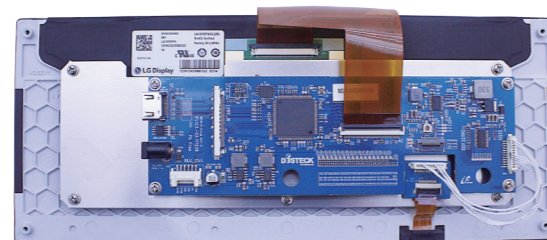
- "DVI to HDMI" or "HDMI to HDMI" connection cable between users' PC and this driving board is recommended to adopt max 1 meter long cable.

◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

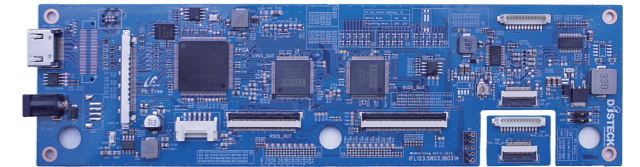
- 198mm X 63mm



IFL123-RSDS

The IFL123-RSDS is designed for ready to use the application of 12.3" LG LCD modules;

- LA123WF1-SR03
- LA123WF3-SR02
- LA123WF4-SR03
- LA123WF4-SR08



Specification

◆ Display

- Digital Video Interface for LG 12.3" RSDS interface type stretched type LCD panels such as LA123WF1-SR03, LA123WF3-SR02, LA123WF4-SR03, LA123WF4-SR08 models
- Video data stream has to be re-aligned by from left/right order to odd/even order in order to see one unity screen.
- Without data re-alignment, user will see odd/even pixel on left/right sides of LCD panel just like two separated screens
- IFL123 has a high speed digital processor that realigns pixel mapping. Data processing delay is less than 1 line.

◆ Video Input

- 2 input types are available, LVDS or DVI type.
- Support 8 bits direct Single-link LVDS Input mode (Can not be used with DVI type)
- Support 8 bits RGB 4:4:4 DVI Input mode (Can not be used with LVDS type)

◆ Others

- IFL123 also supplies power requirements for LCD panel such as Vgh, Vgl, Vcom and Gamma reference voltages with single DC12V input.
- IFL123 provides backlight control unit with just in-place connector for BLU(LED) FFC cable from LA123WF1, LA123WF3 and LA123WF4 panels side. Placement guide holes are crafted on the PCB for easier positioning when attaching the board to rear side of LCD panels.

◆ Basic Features

- Integrated Backlight Controller with Analog and PWM dimming
- Integrated power management with single 12V input
- Integrated power supply for VGH/VGL/VCOM
- Integrated Gamma reference voltage supply
- Integrated EDID for DVI mode.

◆ Caution

- "DVI to HDMI" or "HDMI to HDMI" connection cable between users' PC and this driving board is recommended to adopt max 1 meter long cable.

◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

- 235mm X 65mm

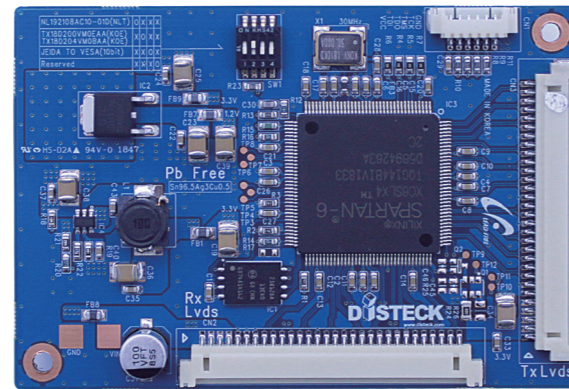




LVDS Converter

for

NLT NL192108AC10-01D
KOE TX18D200VM0EAA10
KOE TX18D204VM0BAA



Specification

- ◆ This LVDS converter receives dual-link LVDS, then an integrated FPGA combines into single link LVDS at doubled clock rate.
 - NLT 9", NL192108AC10-01D, Full HD model
 - KOE (JDI) 7", TX18D200VM0EAA10, Full HD model
- ◆ This converter converts JEIDA format to VESA format, so thus, all 8bit and 10bits format can be fitted into 10 bit panel. However, this converter does NOT enhance quality of 8 bits source.
- All kinds of LVDS based 10 bit Displays from 8 bit source (JEIDA-to-VESA conversion)
- ◆ This converter board takes a role of intermediate device in between ordinary AD board, SBC (single board computer) or Embedded PC and TFT LCD Display (NLT 9" or KOE(JDI) 7").

◆ Basic Features

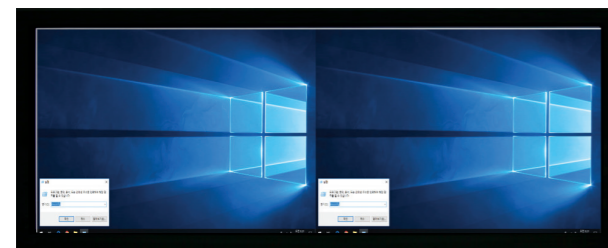
- LVDS Input
- LVDS Output
- LVDS Line Buffer
- LVDS Pixel Formatter
- Vcc in:
 - Min 4.8V
 - Typ 5.0V
 - Max 5.2V

◆ Conditions

- Operating Temperature : -10°C~70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

- 55mm X 80mm X 7.3mm



NL192108AC10-01D

(960 x 1080) + (960 x 1080) resolution



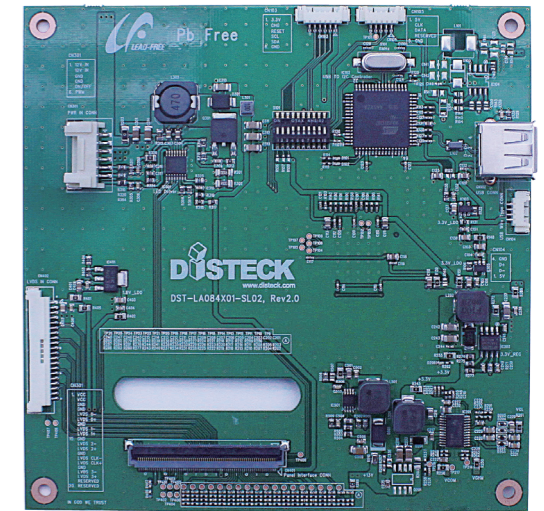
NL192108AC10-01D + LVDS Converter

(1920 x 1080) resolution

Gender Board

consists of

- Touch Controller ,
- Voltage Circuit : Gamma & V-Com
- LED Driver Circuit
- Signal Cable Gender : from FPC to Wire for LG 8.4" Automotive Panel (LA084X1-SL02)



Specification

This gender board which can provide below function for LG 8.4" TFT LCD Panel, LA084X1-SL02 model.

- P-Cap Touch Controller Circuit : Atmel (MicroChip) Controller chip adopted
- Voltage Circuit : Gamma & V-Com
- LED Driver Circuit : 4CH, 55mA, 24Vf supportable
- FPC Cable Connection : mating female connector on PCB and relevant FPC Cable (60 mm long)
- Inner metal chassis : for the assembly between driving board and LCD panel

The above function and so hardware allow to adopt any ordinary driving board based on LVDS level such as AD Board, Embedded Board, ARM Board or Single Board Computer thanks to the above reservation.

◆ Basic Features

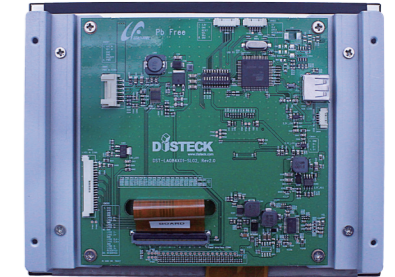
- 8bit type LVDS with 20 pins
- USB Connector and wired USB Connector
- Selection of Touch Control type:
 - I2C control
 - USB Control
- 12V DC Connection by 6 pin wire type connector

◆ Conditions

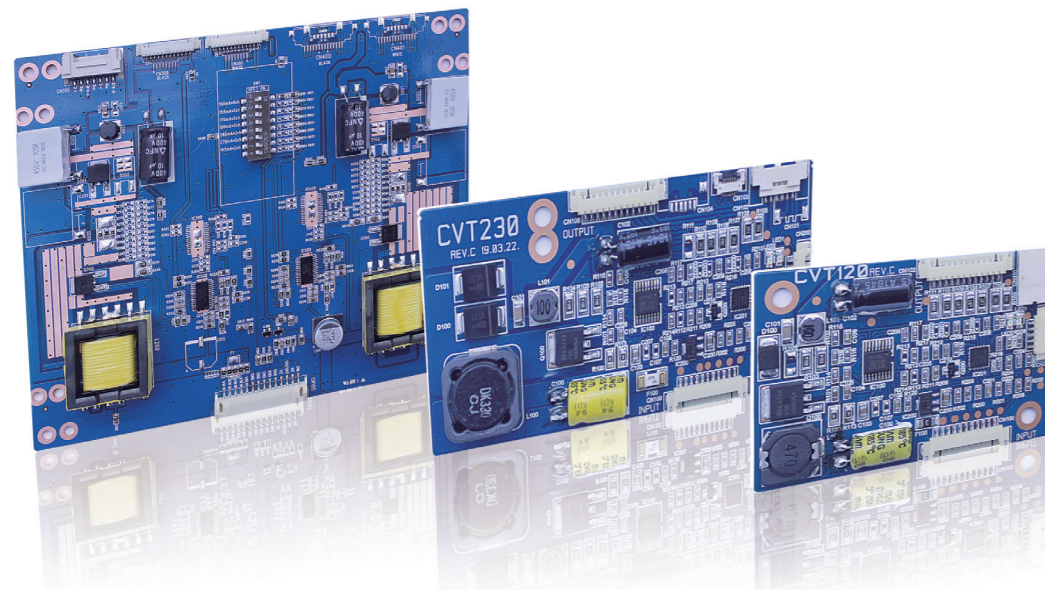
- Operating Temperature : -10°C~70°C
- Operating Humidity : 20%~90%RH
- Storage Temperature : -20°C~70°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

- 125mm X 125mm



Smart LED Driver



- Smart LED Drivers for various TFT LCD panels.
- Analog/PWM dimming control
- Programmable LED drivers per TFT LCD panels.

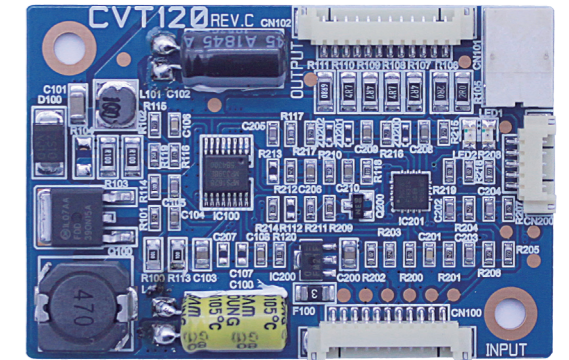
1. CVT120 (Programmable Type Setting)
2. CVT230 (Programmable Type Setting)
3. CVT456-MULTI2 (Dip Switch / Hardware Type Setting)



SMART LED DRIVER

CVT120

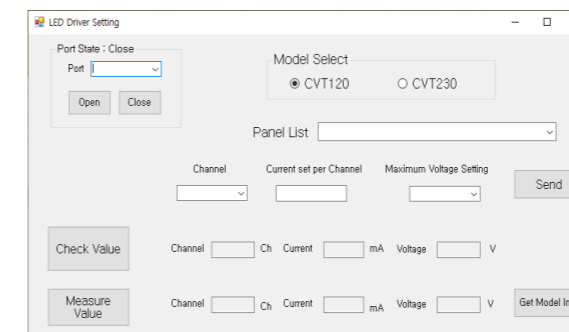
The CVT120 has been designed for providing an easiest way of suitable LED driver adoption based on a fixed hardware model which can be applicable for various TFT LCD Modules.



Specification

◆ Programmable LED Driver

The CVT120 can support various TFT LCD panels by setting value (no H/W change) per panel. And also, it can support analog dimming & PWM dimming also.



◆ Conditions

- Operating Temperature : -35°C~85°C (Optional guarantee up to -40°C~85°C)
- Operating Humidity : 20%~85%RH
- Storage Temperature : -35°C~85°C
- Storage Humidity : 5%~95%RH

◆ Dimensions

- 60mm X 40mm X 6.8mm

◆ Maximum Output Voltage and Current

Forwarding Voltage Range	Channel	Maximum Wattage	Output Constant Current per channel (mA)			Total Output Constant Current (mA)		
			Min.	Typ.	Max.	Min.	Typ.	Max.
15V ~ 65V	1Ch ~ 6Ch	23W under	10	-	630	30	-	630

◆ Over Voltage Protection (OVP)

The voltage will not exceed the upper trip limit. The noise spikes (exceeding the trip limit smaller than 10 μs) will not restrict the output voltage at zero level.

Voltage	Over Voltage Protection	
	Range[V]	Protection
Output	Set 10V higher than the string voltage of panels.	Shut Down

◆ Temperature

- Operating Temp. : -35 ~ 85°C (Without Case)
- Storage Temp. : -35 ~ 85°C (Without Case)

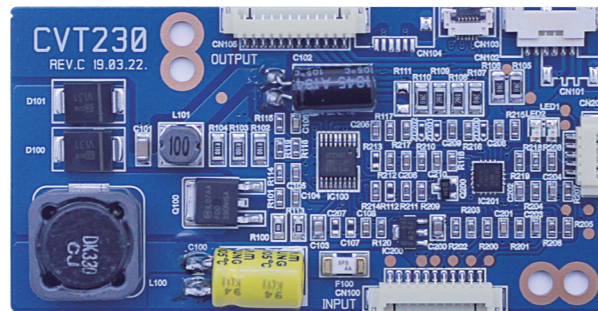
◆ Dimming

Analog Dimming & PWM Dimming



CVT230

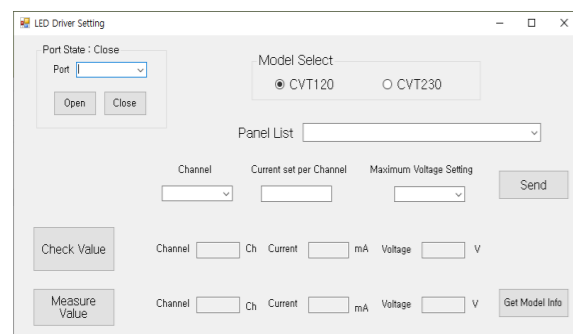
The CVT230 has been designed for providing an easiest way of suitable LED driver adoption based on a fixed hardware model which can be applicable for various TFT LCD Modules.



Specification

◆ Programmable LED Driver

The CVT230 can support various TFT LCD panels by setting value (no H/W change) per panel. And also, it can support analog dimming & PWM dimming also.



◆ Conditions

- Operating Temperature : -35°C~85°C (Optional guarantee up to -40°C~85°C)
- Operating Humidity : 20%~85%RH
- Storage Temperature : -35°C~85°C
- Storage Humidity : 5%~95%RH

◆ Dimensions

- 83mm X 43mm X 11mm

◆ Maximum Output Voltage and Current

Forwarding Voltage Range	Channel	Maximum Wattage	Output Constant Current per channel (mA)			Total Output Constant Current (mA)		
			Min.	Typ.	Max.	Min.	Typ.	Max.
15V ~ 65V	1Ch ~ 6Ch	32W under	50	-	1000	50	-	1000

◆ Over Voltage Protection (OVP)

The voltage will not exceed the upper trip limit. The noise spikes (exceeding the trip limit smaller than 10 μs) will not restrict the output voltage at zero level.

Voltage	Over Voltage Protection	
	Range[V]	Protection
Output	Set 10V higher than the string voltage of panels.	Shut Down

◆ Temperature

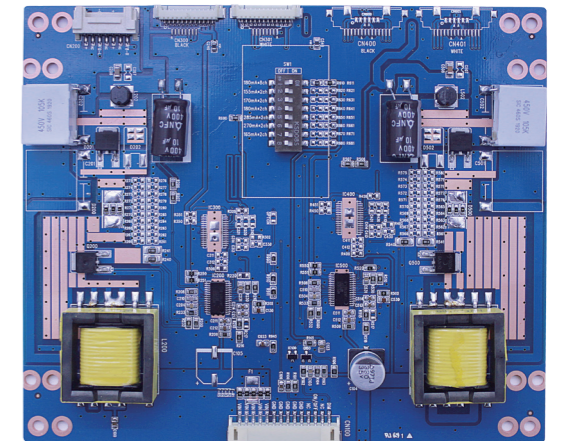
- Operating Temp. : -35 ~ 85°C (Without Case)
- Storage Temp. : -35 ~ 85°C (Without Case)

◆ Dimming

Analog Dimming & PWM Dimming

CVT456-Multi2

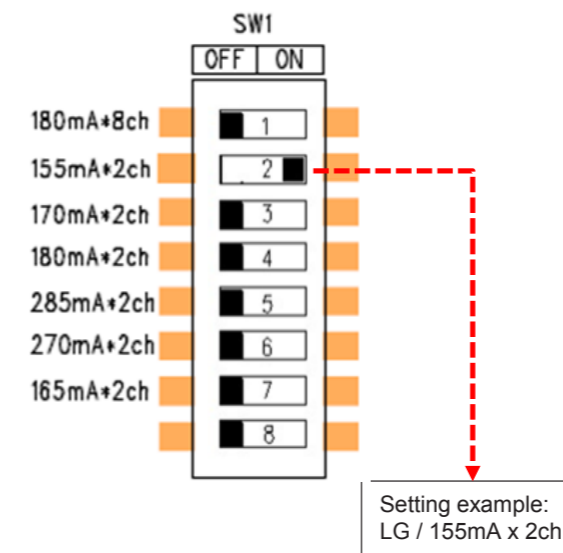
The CVT456-Multi2 is supporting various type displays 40", 43", 49", 55" & 65" models which have not been built-in the mating LED driver.



Specification

◆ Multiple LED Driver

The CVT456-Multi2 can support various TFT LCD panels by change of H/W Dip switch. And also, it can support PWM dimming.



◆ Conditions

- Operating Temperature : 0°C~50°C
- Operating Humidity : 30%~85%RH
- Storage Temperature : -10°C~65°C
- Storage Humidity : 5%~90%RH

◆ Dimensions

- 152.5mm X 130mm X 13mm

◆ Supportable TFT LCD Panel List

❖ CVT456-Multi2-B

- LD430EUE-FHB1, LD430EUE-FHC1, LC430EUE-FHM1, LC430EUE-FHM2, LC430EGE-FHM1

- LD490EUE-FHA1, LD490EUE-FHB1, LD490EUE-FHC1, LD490EGE-FHM1, LC490EUE-FHM1

- LD550EUE-FHA1, LD550EUE-FHB1, LD550EUE-FHC1, LD550EGE-FHM1, LC550EGE-FHM1, LC550EUE-FJM1

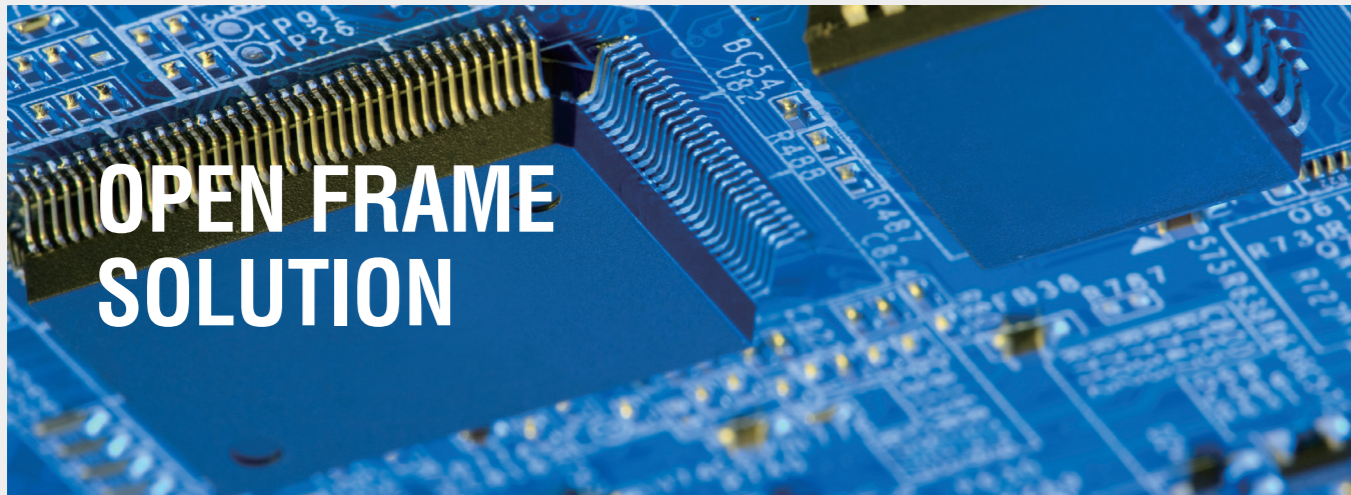
- LD650EGE-FHM1, LC650EGE-FHM1, LC650EUF-FHB1, LD650EUF-FHB1

❖ CVT456-Multi2-C

- LD430EQE-FLA1
- LD550EQE-FKA1
- LD650EQE-FJA1

❖ CVT456-Multi2-D

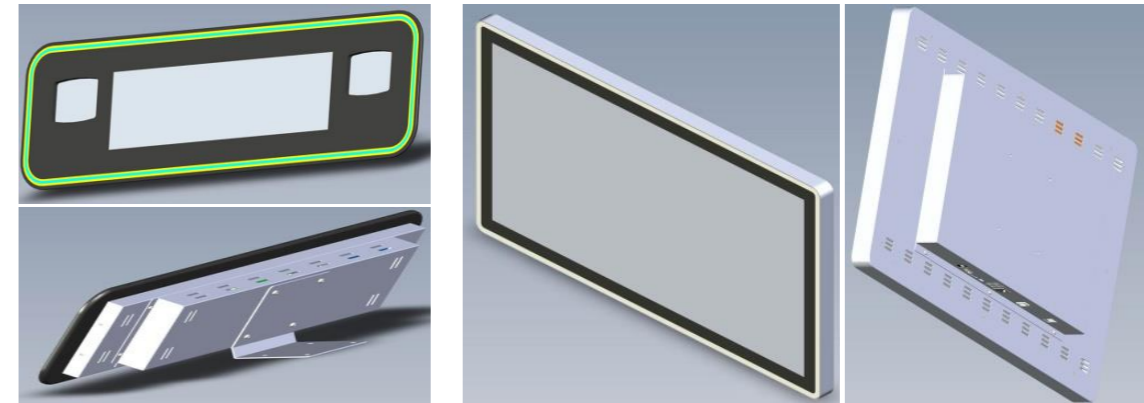
- INNOLUX S400DJ1-KS5



DISTECK designs and manufactures custom open frame, High Bright monitor and panel PC solutions for a wide range of market-specific applications.

- 1. STANDARD MODEL
 - 1) Open frame Solutions
 - 2) Panel PC
- 2. STRETCHED MODEL

STANDARD MODEL



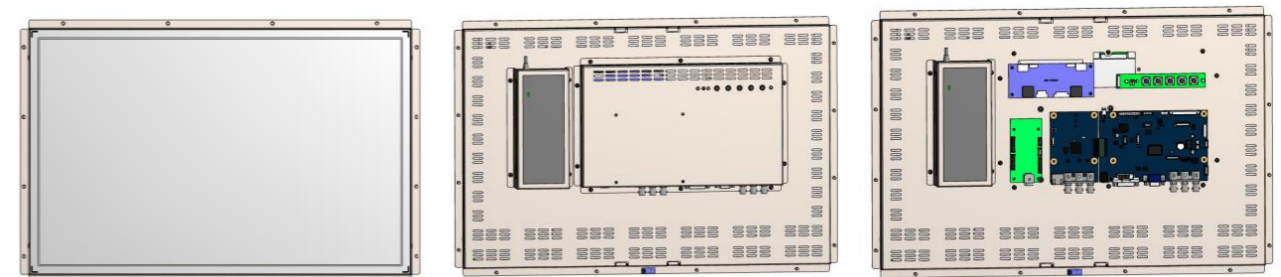
Open frame solutions

- ❖ Rackmount open frame with touch screen
- ❖ Gaming open frame
- ❖ Rugged monitors for industrial use
- ❖ High Bright open frame/monitors
- ❖ Stand-alone monitors



Panel PC

- ❖ Open frame panel PCs with various touch technologies
- ❖ Rackmount solutions for easy integration
- ❖ Rugged panel PCs for use under harsh environmental conditions
- ❖ Stand-alone panel PCs for plug and play





STRETCHED MODEL

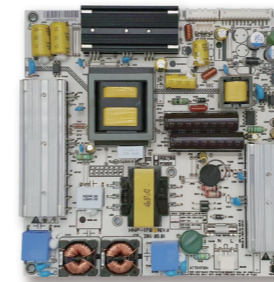
DISTECK designs and manufactures customized Open Frame of stretched type LCD and High Bright stretched LCD models for a wide range of market-specific applications.



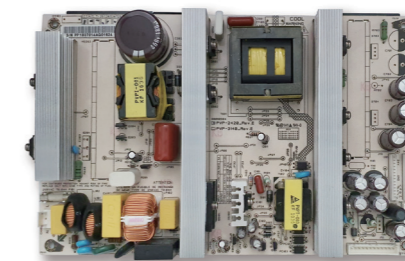
• Available running LCD Models

Maker	Size	Resolution	Brightness	LCD Model
BOE	19"	1920 x 360	300	DV190FBM-NB0
BOE	20.9"	1920 x 132	300	DV210FBM-N00
BOE	24"	1920 x 360	300	DV240FBM-NB0
BOE	28"	1920 x 360	700	DV280FBM-NB1
BOE	29"	1920 x 720	700	DV290FBM-N01
BOE	36.6"	1920 x 290	700	DV366FBM-N10
BOE	47.1"	3840 x 160	500	DV471FBM-N01
BOE	48"	3840 x 720	1000	DV480FBM-N01
AUO	15.1"	1280 x 248	300	G151EVN01.0
AUO	22.9"	1920 x 165	500	G229HAN01.0
AUO	22.9"	1920 x 165	700	G229HAF01.0
AUO	22.9"	1920 x 165	700	G229HAF02.0
AUO	28.0"	1920 x 360	700	P280HVN02.0
AUO	28.6"	1920 x 540	1000	G286HAN01.0
AUO	29.0"	1920 x 540	700	P290IAN01.0
AUO	37.0"	1920 x 540	2500	P370IVN04.0
AUO	37.0"	1920 x 540	1500	P370IVN03.0
AUO	37.0"	1920 x 540	1000	P370IVN01.0
AUO	37.0"	1920 x 540	700	P370IVN02.0
AUO	42.0"	1920 x 480	2500	P420IVN03.0
AUO	42.0"	1920 x 480	1500	P420IVN02.0
AUO	42.0"	1920 x 480	700	P420IVN01.0
AUO	48.5"	1920 x 360	700	P485IVN01.0
AUO	49.5"	1920 x 540	1500	P495IVN01.0
LG	12.3"	1920 x 720	900	LA123WF4-SR08
LG	88.0"	3840 x 1080	700	LD880DEN-UKA2

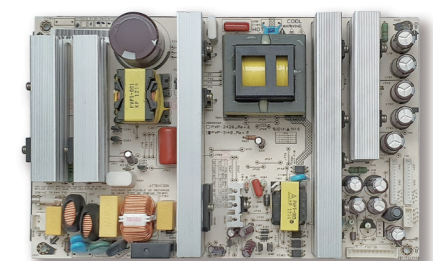
SMPS (Switching Mode Power Supply)



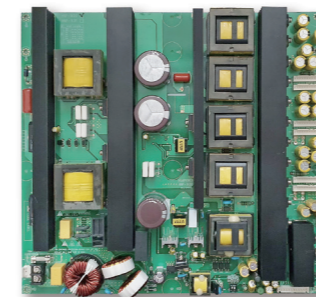
HNP-1701



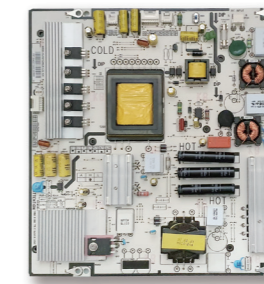
PVP-2420



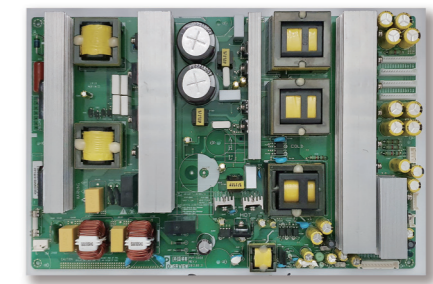
PVP-3140



HNP-1K00



PVP-2342



PVP-5960

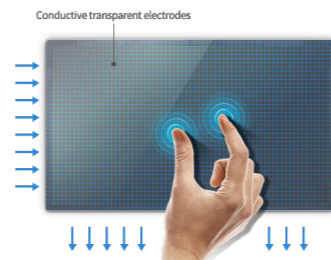
MODEL	INPUT	TYPE	POWER	OUTPUT
HNP-1700	100V to 240Vac	SLIM POWER	179W	5VS/1A, 5VD/2.5A, 12V/3A/24V/5A
HNP-1701	100V to 240Vac	SLIM POWER	161W	5VS/1A, 12V/3A, 24V/5A
PVP-2342	100V to 240Vac	SLIM POWER	209W	5VS/1A, 12V/3A, 24V/7A
PVP-2420	100V to 240Vac		272W	5VS/1.2A, 5VD/4A, 12V/4.5A, 24V/8A
PVP-3140	100V to 240Vac		350W	5VS/1.2A, 5VD/4A, 12V/5A, 24V/11A
PVP-5960	100V to 240Vac		590W	5VS_Main/1A or 3.4VS/1.5A, 5VS/0.1A, 5VD/3A, 12V 7A, 24V 20A
HNP-1K00	100V to 240Vac		1KW	5VS/2.5A, 5VD/3A, 12V/8A, 24V/36A

TOUCH SOLUTION AND TFT LCD MODULES

PCAP Touch (Projected Capacitive Touch)

The projected capacitive method utilizes clear conductive electrodes that create a checkerboard surface. Touch is detected through changes in electricity between the electrodes. The P-CAP method and allows for multi-touch functionality.

7" ~ 55"
ITO & Metal mesh type PCAP touch solution with extremely high performance and stable & reliable



Touch Controller (USB Type, I2C Type)

Except the COF (Chip On FPC), the most of COB type (Chip On Board) Controllers are available to provide, for example the "EETI" model, "Silicon Works" model and "DMC" model.

Especially Disteck can supply an "Universal Type" controller which can be adopted for any different existing manufacturers' Touch Screen without additional tuning process of sensitivity.

This Universal model has very strong features such as 40 points touch, Water Noise Free, Globe Touch supportable, Palm Touch, etc

TFT LCD Panels

In general, the TFT LCD Panel is available to be supplied with the mating driving board kit, however if any customers are looking for a short term delivery or less than a carton box q'ty or a part of OEL model, if any, Disteck Display has provided the LCD Panels to the customers, so far. In case of Product Road Map file and Spec files of target LCD Model, Disteck provide to whom it may need continuously.

