Video Electronics Standards Association

860 Hillview Court, Suite 150
Milpitas, California 95035

Phone: 408-957-9270
Fax: 408-957-9277

VESA 22-inch Wide Panel Standard

Version 1
March 16, 2007

Purpose

This specification defines the requirements to standardize the mechanical dimensions and selected electrical interface elements of 22-inch wide format panels intended for use as LCD monitors.

This standard will help LCD manufacturers and panel consumers to better control panel supply and demand cycles.

The intent of this standard is that panels built to this specification are interchangeable without requiring alterations to tooling or drive electronics.

Summary

This proposal describes the mechanical dimensions, electrical interfaces and data formatting for 22-inch wide monitor panels.

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Preface

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142 Technology Drive, Suite 100
Irvine, CA 92618
Phone: 949-753-2600.

Chi Mei Optoelectronics Corp
Global Headquarters
No. 3, Sec. 1, Huanshi Rd., Southern Taiwan Science Park,
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Other Documents Referenced

Note: Versions identified here are current, but users of this standard are advised to ensure they have the latest versions of referenced standards and documents.

Table 0-1: Reference Documents

Source	Name	Version / Date
TIA/EIA-644	Electrical Characteristics of Low-Voltage Differential Signaling (LVDS) Interface Circuits	March 1, 1996

Support for this Standard

Clarifications and application notes to support this standard may be written. To obtain the latest standard and any support documentation, contact VESA.
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Video Electronics Standards Association
860 Hillview Court, Suite 150
Milpitas, CA 95035

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Table 0-2: Acknowledgements

Name	Company Name	Contribution
Emily Hwei	Chi Mei Optoelectronics	
C.J. Lin	Chi Mei Optoelectronics	
Alex Wong	Chunghwa Picture Tubes	
Billy Leong	Dell	
Thomas Chung	Dell	
Sim Tiak Hooy	Dell	
Joe Goodart	Dell	Task Group Chair & Editor
David Braun	Hewlett-Packard	
Hunter Ryu	LG.Philips LCD	
Ian Miller	Samsung	
Moo-Kyung (Mark) Son	Samsung	
Choing, Choi	Samsung	
Alain d'Hautecourt	ViewSonic	

Revision History

March 16, 2007 Initial Release of the Standard

1 Overview

1.1 Summary

This document defines the electrical interface requirements and mechanical dimensions for industry compatible 22-inch wide LCD panels.

1.2 Standard Objectives

This document establishes a common specification for 22-inch wide monitor LCD panels with the intent of creating standardization among these panels such that panels meeting this specification are interchangeable with respect to mechanical fit, electrical requirements, signal definitions and data formats.

2 System Electrical Interface Requirements

The panel's electrical interface to the system consists of two physical electrical interfaces: an LVDS interface which encodes the digital R-G-B data and timing/control signals, and a power interface for the panel backlight.

This specification is only for panels with a 16:10 image format supporting a pixel format of 1,680 pixels horizontally by 1,050 pixels vertically.

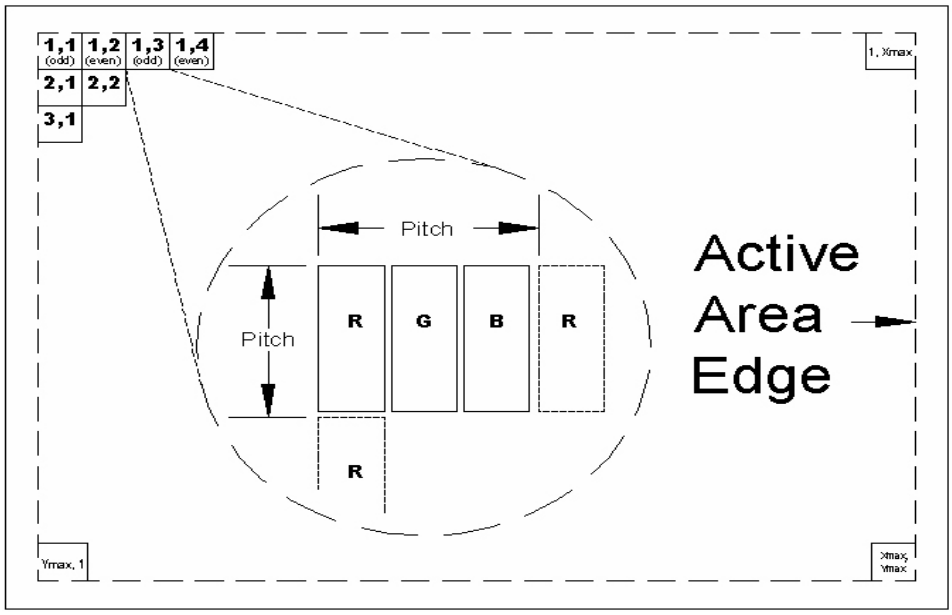


Figure 2-1: Active Area Pixel Layout

2.1 DisplayPort Interface

The DisplayPort Interface is described in a separate VESA standard

2.2 LVDS Interface

LVDS Signal Interface Connector Requirements.
The LVDS signal interface connector shall be as listed below. The connector keep-out area is designed to support insertion of either a wire-crimp style connector or the wider flex-cable style connector. Connector orientation relative to pin-one designation shall be as shown on Figure 2-6: 22-inch Wide Standard Panel Mechanical Dimensions.

2.2.1 LVDS Interface Signal Definition

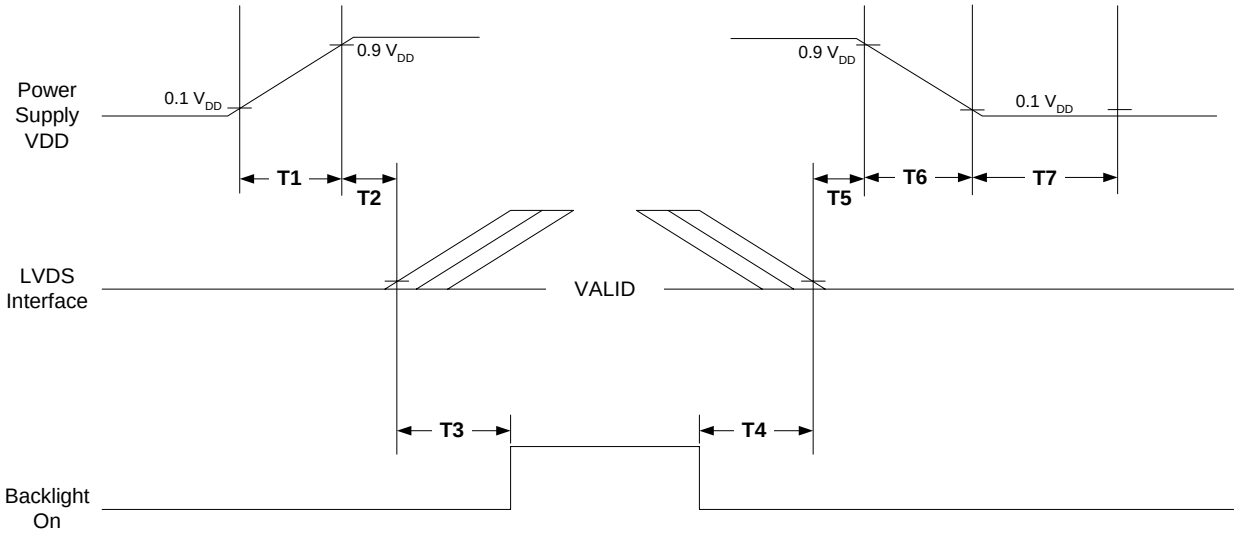
The LVDS signal interface cable shall be terminated to a JAE FI X30SSL-HF , FI-XB30SRL-HF11 or equivalent connector. This connector is a locking type. The interface connector pin assignments are listed below.

Table 2-1: LVDS Connector Pin Assignments

Pin No.	Symbol	Function
Frame		Ground
1	RxO0-	- LVDS differential data input, Chan 0-Odd
2	RxO0+	+ LVDS differential data input, Chan 0-Odd
3	RxO1-	- LVDS differential data input, Chan 1-Odd
4	RxO1+	+ LVDS differential data input, Chan 1-Odd
5	RxO2-	- LVDS differential data input, Chan 2-Odd
6	RxO2+	+ LVDS differential data input, Chan 2-Odd
7	Vss	Ground
8	RxOC-	- LVDS Differential Clock input (Odd)
9	RxOC+	+ LVDS Differential Clock input (Odd)
10	RxO3-	- LVDS differential data input, Chan 3-Odd
11	RxO3+	+ LVDS differential data input, Chan 3-Odd
12	RxE0-	- LVDS differential data input, Chan 0-Even
13	RxE0+	+ LVDS differential data input, Chan 0-Even
14	Vss	Ground
15	RxE1-	- LVDS differential data input, Chan 1-Even
16	RxE1+	+ LVDS differential data input, Chan 1-Even
17	Vss	Ground
18	RxE2-	- LVDS differential data input, Chan 2-Even
19	RxE2+	+ LVDS differential data input, Chan 2-Even
20	RxEC-	- LVDS Differential Clock input (Even)
21	RxEC+	+ LVDS Differential Clock input (Even)
22	RxE3-	- LVDS differential data input, Chan 3-Even
23	RxE3+	+ LVDS differential data input, Chan 3-Even
24	Vss	Ground
25	NC	No Connection
26	NC	No Connection
27	NC	No Connection
28	Vcc	+ 5 Volts
29	Vcc	+ 5 Volts
30	Vcc	+ 5 Volts

2.2.2 LVDS Power Sequencing Requirements

To prevent a latch-up or DC operation of the LCD, the panel shall support the logic power and data / control signal sequencing of Figures 2-1, 2-2 and 2-3.



	Minimum time (ms)	Maximum time (ms)
T1	0.5	10
T2	0.0	50
T3	1000	-
T4	200	-
T5	0.0	50
T6	0.01	10
T7	1000	-

Figure 2-1: Logic Power and LVDS Signals Sequencing Diagram

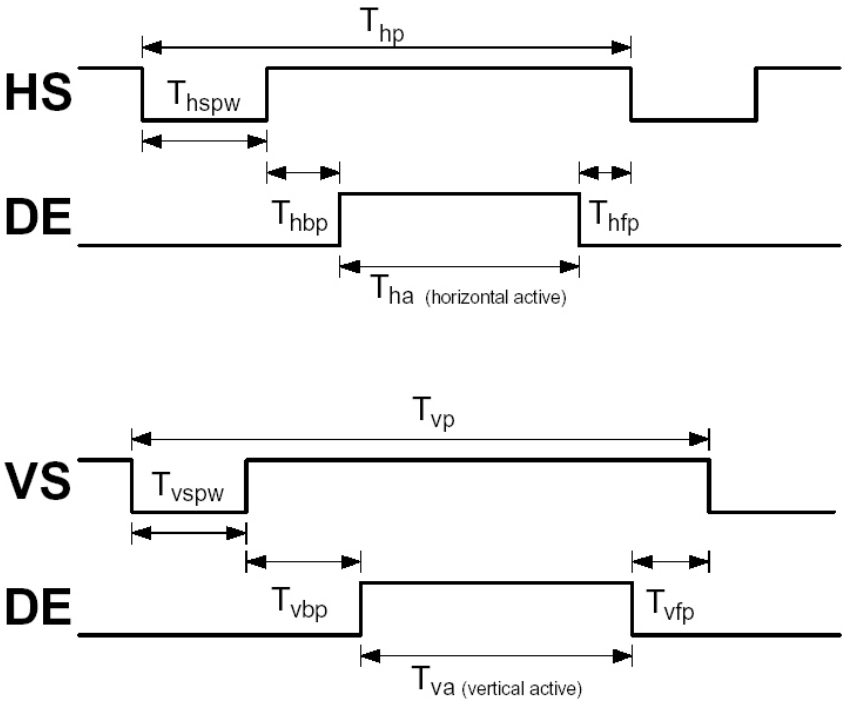


Figure 2-2: Data Enable Timing

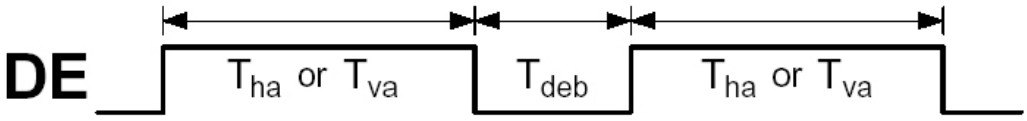


Figure 2-3: DE Only Timing Mode

2.2.3 LVDS Data and Control Signal Interface

The module's LVDS signals interface shall meet requirements of TIA/EIA-644. Figure 2-4 shows the data mapping diagram of each LVDS channel when 8-bit color is used, Figure 2-5 shows the data mapping diagram of each LVDS channel when 6-bit color is used. The LVDS differential signals line-to-line termination impedance, ZT, shall be 100 ± 10 ohms.

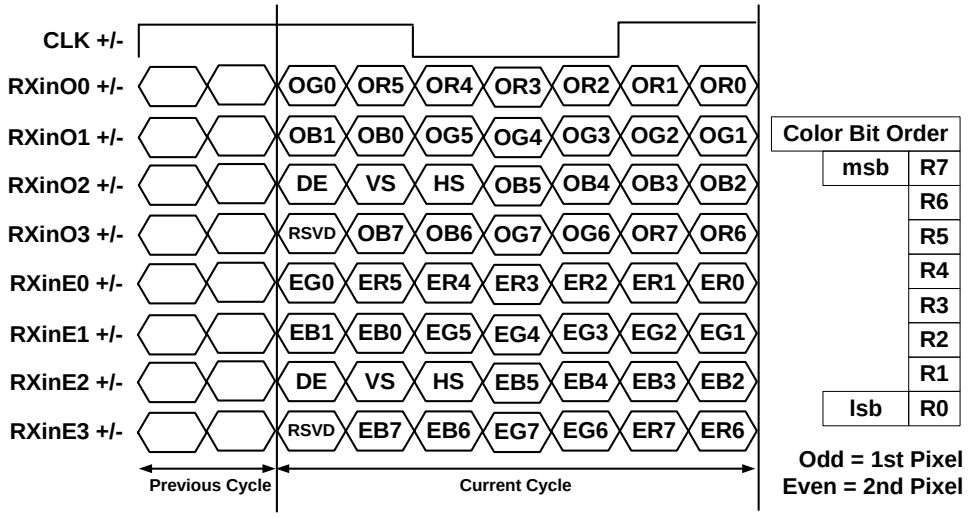


Figure 2-4: Dual LVDS Channel Color Mapping (8-bit)

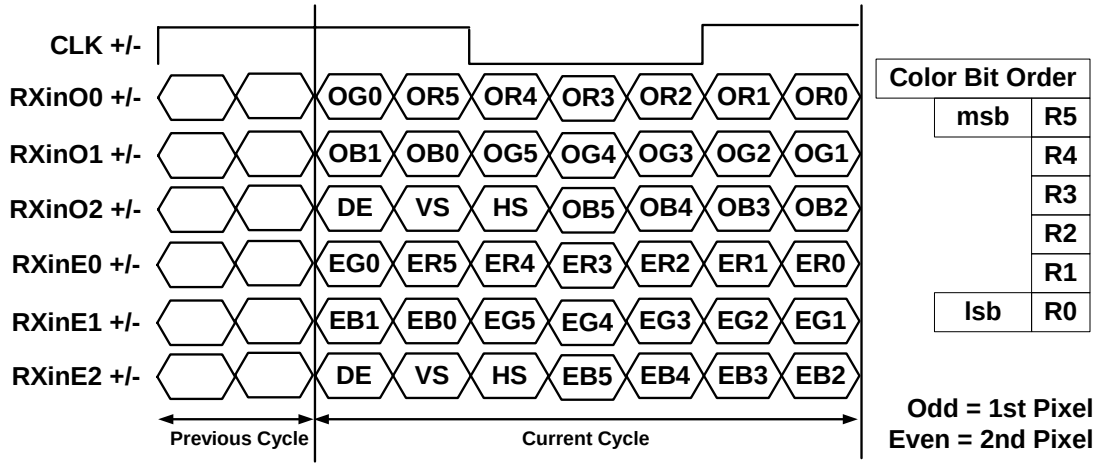


Figure 2-5: Dual LVDS Channel Color Mapping (6-bit)

2.3 Backlight Electrical Interface

The panel-side backlight interface cable shall be terminated into JST BHR-02VS-1,2 or equivalent connectors. The lamp wires exiting the panel shall be sufficiently protected so that normal movement during enclosure assembly will not cause the insulation to be cut. The connector interface pin assignments are listed in the table below.

Table 2-2: Lamp Connector Configuration

Pin	Symbol	Description	Remark
1	HV	High Voltage	Pink
2	LV	Low Voltage	White
1	HV	High Voltage	Blue
2	LV	Low Voltage	Black

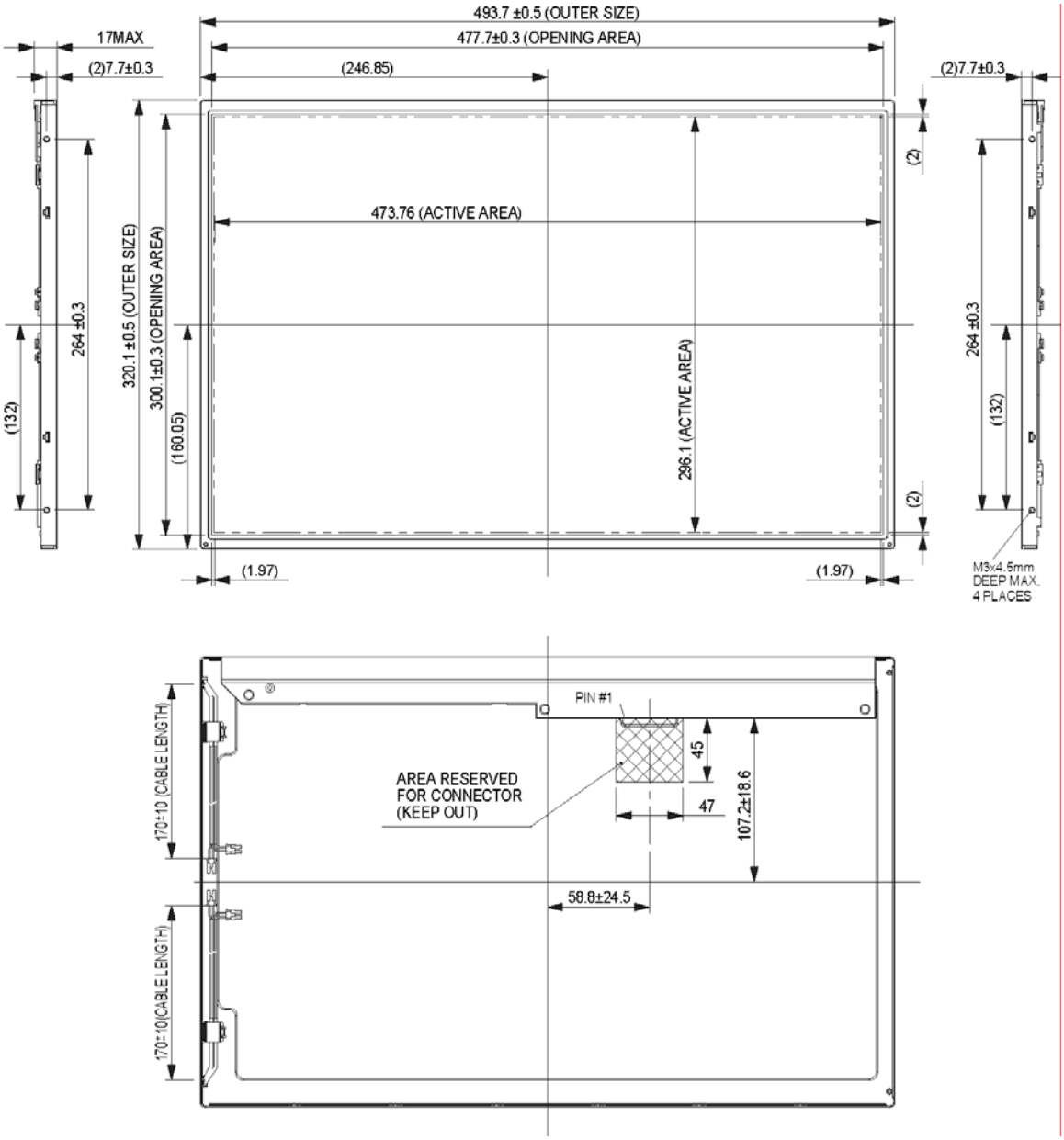


Figure 2-6: 22-inch Standard Panel Mechanical Dimensions

Fig. 2-6 notes:

All dimension in mm.
Drawing not in scale.
Interface connector: FI-X30SSL-HL (JAE) or equivalent.
Lamp connector: BHSR-02VS-1(JST) or equivalent.
Mounting torque spec: 3~4kgf-cm.

3 Glossary of Terms

Abbreviation	Meaning
CCFL	Cold Cathode Fluorescent Lamp
DE	Display Enable
HS	Horizontal Sync
lsb	Least Significant Bit
LVDS	Low Voltage Differential Signaling: TIA/EIA-644
msb	Most Significant Bit
NC	No Connection
T_{deb}	Time - Display Enable Blanking
T_{ha}	Time - Horizontal Active
T_{hbp}	Time - Horizontal Back Porch
T_{hfp}	Time - Horizontal Front Porch
T_{hp}	Time - Total Horizontal Period
T_{hspw}	Time - Horizontal Sync Pulse Width
T_{va}	Time - Vertical Active
T_{vbp}	Time - Vertical Back Porch
T_{vfp}	Time - Vertical Front Porch
T_{vp}	Time - Total Vertical Period
T_{vspw}	Time - Vertical Sync Pulse Width
VBR	Backlight Brightness
VIN	Backlight Power
VON/OFF	Backlight On / Off
VS	Vertical Sync

